

# **Attachment 2**

**AN ECONOMIC ASSESSMENT OF THE COMMISSION'S PROPOSED  
MVPD ACCESS DEVICE REGULATION**

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## **I. INTRODUCTION AND OVERVIEW**

1. At the request of counsel for AT&T, I have conducted an economic analysis of the Federal Communications Commission's ("Commission") proposal to impose extensive new regulations on multichannel video programming distributors ("MVPDs") in order to promote the Commission's vision of competition in the provision of equipment and applications software that facilitate access to MVPD programming. This declaration presents the findings I have reached to date based on my analysis of the relevant facts and economic principles. My central conclusion is that the proposed regulations are unnecessary, costly, and would be expected to harm both competition and consumer welfare if adopted.

2. Section 629 of the Communications Act states, in part, that:<sup>1</sup>

The [Federal Communications] Commission shall, in consultation with appropriate industry standard-setting organizations, adopt regulations to assure the commercial availability, to consumers of multichannel video programming and other services offered over multichannel video programming systems, of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor.

3. The Commission has asserted that the goals of Section 629 cannot be achieved unless the Commission creates "competition in the user interface and complementary

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<sup>1</sup> 47 U.S.C. § 549(a).

features.”<sup>2</sup> To that end, the Commission proposes to impose an intrusive set of regulations that, among other things, would require MVPDs to offer three flows of information to third parties wishing to offer video discovery capabilities without charge:<sup>3</sup>

- (1) service discovery (information about what programming is available to the consumer, such as the channel listing and video-on-demand lineup, and what is on those channels), (2) entitlements (information about what a device is allowed to do with content, such as record it), and (3) content delivery (the video programming itself, along with information necessary to make the programming accessible to persons with disabilities).
4. Regulation—especially pervasive regulation of the sort proposed by the Commission—inevitably imposes administrative costs on public and private entities and often gives rise to unintended adverse consequences. Consequently, it is widely recognized among economists and public policy makers that imposing new regulations can be expected to benefit consumers only if there is sound evidence that: (a) a significant market failure exists, and (b) the actual—as opposed to intended—effect of the regulations would be to improve market performance.
5. The *Device NPRM* is deficient on both counts:
- The *NPRM* fails to provide any meaningful evidence of market failure. Instead it attempts to dismiss the substantial evidence that competition has dramatically

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<sup>2</sup> Notice of Proposed Rulemaking and Memorandum Opinion and Order, *In the Matter of Expanding Consumers’ Video Navigation Choices Commercial Availability of Navigation Devices*, MB Docket No. 16-42, CS Docket No. 97-80, rel. February 18, 2016 (hereinafter, *Device NPRM*), ¶ 12.

<sup>3</sup> *Device NPRM*, ¶ 2. At various points in this declaration I refer to “video discovery capabilities,” which is a broader concept than the “converter boxes, interactive communications equipment, and other equipment” identified by the statute. Discussion of this concept should not be read as an endorsement of the Commission’s interpretation of the statute.

increased since Section 629 was enacted, that the marketplace has been offering consumers an increasingly attractive and wide array of means of accessing video programming, and that competition at multiple levels will continue to drive marketplace participants to improve consumers' video access options.

- The *NPRM* fails to provide a sound analysis of what will be the actual effects of the Commission's proposed rules. Instead, it relies on unfounded assertions that the proposed rules will improve market performance. However, economic analysis of the proposed rules demonstrates that implementing them would be expected to harm consumers by diminishing and distorting competition in ways that would raise prices while lowering service quality and reducing innovation.

In short, there are no signs of anticompetitive behavior or serious market failure that would justify the Commission's proposal; there are, however, substantial signs that the proposed rules would lead to regulatory failure.

6. Consider first the Commission's failure to conduct a sound analysis of current market performance. As demonstrated in Section II below, examination of the facts reveals that, while not perfect, the current marketplace is offering consumers a large and growing range of options. Extensive competition in devices and video discovery capabilities has developed since Section 629 was enacted twenty years ago. Today, tens of millions of consumers access their MVPD subscriptions through a wide range of equipment—most notably, mobile phones and tablet computers, but also streaming media

devices such as Apple TV and Roku—provided by parties unrelated to MVPDs.<sup>4</sup> In addition, there has been substantial growth in video competition—both among MVPDs and, increasingly, from new types of service providers. When the statute was enacted, MVPD competition was limited: direct broadcast satellite (“DBS”) was in its infancy and consumers generally had access to only a single incumbent cable company for MVPD services.

7. Today, in stark contrast, two nationwide DBS providers, as well as telephone company MVPDs, provide competition to the cable incumbents—so much so that the Commission has adopted a presumption that local cable markets nationwide are effectively competitive.<sup>5</sup> In addition, there has been extensive entry in recent years by new types of service providers, including Netflix, Amazon.com, and Sony PlayStation Vue, the last of which offers services very much like those of a traditional MVPD. Today, MVPDs compete by seeking to distinguish themselves through their navigation capabilities and devices, such as innovative set-top boxes that allow sophisticated search using voice commands. Consequently, consumers have a choice of which type of platform they wish to receive and consumers benefit from competition that has resulted in enhanced device features and functionality. Rather than suggesting any sort of market

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<sup>4</sup> Moreover, even if there were not competition from these independent devices, evidence of market failure would be lacking. As I discuss in Section II.B.2 below, the integration of video discovery capabilities into MVPD services appears to be an efficient response to the nature of consumer tastes and technology, as is the provision of navigation devices by MVPDs.

<sup>5</sup> Report and Order, *In the Matter of Amendment to the Commission’s Rules Concerning Effective Competition, Implementation of Section 111 of STELA Reauthorization Act*, 30 FCC Rcd 6574, rel. June 3, 2015 (hereinafter, *Effective Competition Report and Order*), ¶ 1.



failure, these facts all indicate that the current marketplace is serving consumer interests—consumers are benefiting from easier access and more customer-friendly user interfaces. These facts and other market trends also indicate that—absent the Commission’s proposed new regulations—market performance can be expected to continue to improve as competition continues growing and firms continue to innovate in response to competitive pressures.

8. Not surprisingly, the *Device NPRM* does not admit to its failure to demonstrate a need for regulation. Instead, it offers a distorted view of the marketplace and attempts to dismiss the evidence that the current marketplace is serving consumer interests.

Specifically, the *Device NPRM* states that the Commission’s proposal rests on three fundamental points. Examination of the relevant facts and economic principles reveals that each of the three points relies on faulty premises:

- First, despite the substantial evidence of the extensive device and video discovery capability competition summarized above and described in greater detail below, the Commission asserts that there is a lack of competition. The Commission is able to do so only by taking a stilted and static view of the marketplace. For example, the Commission attempts to dismiss the fact that tens of millions of consumers access MVPDs’ programming through devices (*e.g.*, mobile phones, tablet computers, and streaming media devices) provided by parties unrelated to MVPDs on the grounds that the full range of MVPD content and other services may not be available through these devices. In doing so, the Commission ignores the fact that the gap in programming available on third-party devices is rapidly narrowing. Given the complexity of programming contracts and their multi-year

terms, it is not surprising that the process of negotiating rights to new forms of distribution takes time, and the lack of instantaneous adjustment is not a sign of market failure. The Commission also ignores evidence that many consumers desire less than the full range of MVPD programming. In contrast to the Commission's approach, a sound approach to regulation should be forward looking and consumer-welfare oriented.

- Second, although the statute seeks to ensure the availability of “equipment” (*e.g.*, converter boxes), the Commission asserts that “competitive navigation—that is, competition in the user interface and complementary features—is essential to achieve the goals of Section 629.” The Commission’s conception of “competitive navigation” is far broader than offering substitutes for equipment provided by MVPDs, which is the stated concern of Section 629.<sup>6</sup> The Commission attempts to justify its expansive rules with an incomplete and misleading reading of the history of the Commission’s failed CableCARD regime. Rather than demonstrating the need for even more-expansive regulations, historical experience is better read as indicating that the current marketplace is operating efficiently, so that additional regulation is unwarranted. For instance, if it were efficient to unbundle the user interface from the rest of an MVPD’s services, economic logic would predict that new entrants, such as DBS providers or telco MVPDs, would have used this approach to take market share away from incumbent cable operators. The fact that these competitors ultimately relied on an

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<sup>6</sup> Throughout this declaration, I am addressing the issue of statutory interpretation solely from the perspective of economics. I am not offering a legal opinion.

integrated model indicates that this choice was driven by competition and efficiency, rather than being a sign of market failure. The history of CableCARD also serves as a warning that attempts to create artificial markets are likely to harm—rather than benefit—consumers.

- Third, the Commission asserts that, in the absence of additional regulation, MVPDs would block competition by rival device suppliers. Such a theory could make sense only if MVPDs had monopoly power. However, the *Device NPRM* provides no evidence of MVPD monopoly power and ignores the Commission’s own conclusions to the contrary in other proceedings. Absent evidence of monopoly power, the Commission does not have a sound basis for imposing its proposed regulations. In fact, as a result of the competition that MVPDs now face and which is growing, MVPDs have incentives to supply attractive video access devices and discovery capabilities that allow their subscribers to access and navigate their video services when and where they want on the device of their choosing. The marketplace evidence shows MVPDs are already doing this, and there is every reason to expect they will continue doing so given their economic incentives to do so.<sup>7</sup>

9. Turning to the question of whether regulation will improve market performance, the *Device NPRM* fails to provide a meaningful analysis of the effects of the proposed

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<sup>7</sup> Moreover, even if, *arguendo*, MVPDs had monopoly power in the provision of video services, the leverage theory on which the Commission relies is well known to apply only under certain conditions, and—as I show below—those conditions clearly do not apply to MVPDs’ provision of access devices and video discovery services.

rules. As I demonstrate in Section III below, economic analysis indicates that implementing the proposed rules would be expected to harm consumers by diminishing and distorting competition in ways that would raise prices while lowering service quality and reducing innovation and investment in programming, video discovery capabilities, and MVPD services more broadly. Of particular concern, the Commission's proposed rules could especially harm programming targeted at minority audiences.

10. By artificially isolating navigation from the remainder of MVPD service, the proposed regulations would harm consumers by distorting competition and undermining investment and innovation through at least five economic mechanisms:

- First, the Commission's proposal would create an artificial market with core institutional features that will ensure that it will suffer from market failures. Specifically, the Commission's artificial market structure will block important price signals from guiding efficient provider and user behavior. By destroying price signals, the proposed regulations can be expected to harm consumers by triggering higher prices while reducing service quality, innovation, and investment. For instance, channel placement is very important to many programmers as a means of reaching viewers. For this reason, agreements between MVPDs and programmers often specify that a channel must be placed in a "neighborhood" of similar channels, such as a consecutive range of news channels. The other terms of the agreements (including financial terms) reflect these neighborhood clauses as part of the overall give-and-take of bargaining. The Commission's proposal would enable a third-party video discovery provider to change the channel lineup (or implement a search algorithm that makes it

harder to find particular programming) without having to reach agreement with—or offer any compensation to—either the affected programmer or MVPD. By undermining agreements in this way, the Commission’s proposed rules would reduce the value of programming and the incentives to produce it. These harms are of particular concern to programmers offering content aimed at serving minority audiences because such content may be particularly reliant on channel placement and other features of the current video ecosystem that could be undermined by the proposed rules.

- Second, the proposed “parity” requirement will further reduce innovation incentives by increasing the cost of innovating and by slowing the process of bringing innovation to market. For example, under the parity rules, if an MVPD wishes to innovate by extending its service to a new platform, it will be forced first to provide a certified security solution for third parties wishing to operate on that platform. This requirement will induce delay and increase the cost of expanding to new platforms and, therefore, will discourage such expansion. Consumers will suffer both from the reduction in innovation and from the delays in the introduction of those innovations that do occur.
- Third, by separating investment responsibility and the realization of economic returns across two (or more) companies while undermining efficient contractual relationships between those companies, the proposed rules would undermine incentives to make investments in video services and video discovery capabilities

that are complementary with one another and—if not discouraged by the proposed rules—would have benefited consumers.

- Fourth, if implemented, the Commission’s artificial market structure would make it more difficult and costly for consumers to determine the sources of degradation in service quality. This increase in consumers’ transactions costs would harm consumers directly. Moreover, the proposed rules would induce quality degradation, resulting in additional consumer harm. The proposed rules would do so because, when consumers are unable to determine the source of lower quality, a firm that lowers its quality will not lose as many customers as it otherwise would, and a firm that raises its quality will gain fewer customers than otherwise. Consequently, both MVPDs and third-party video discovery providers will have less incentive to maintain quality or to engage in investment and innovation to raise quality. The resulting quality degradation will harm consumers.
- Fifth, the Commission’s proposal places substantial reliance on standard-setting organizations. Experience and economic analysis demonstrate that, although standard-setting organizations can play useful roles, they can also be sources of cost and delay, particularly in circumstances such as those that the Commission proposes to create. Private parties can be expected to manipulate the Commission’s proposed standards process in ways that will benefit those parties but harm competition and consumers, both by making innovation more costly and slow, and by leading to standards that distort competition rather than promote it.

11. In summary, a sound economic assessment of the evidence indicates that consumers would be better served by allowing competitive forces to continue to drive marketplace participants to offer an ever-wider array of increasingly attractive video discovery options. The remainder of this declaration explains these findings in greater depth and provides details of the facts and analyses that led me to reach them.

**II. THE NPRM FAILS TO PROVIDE ANY MEANINGFUL ANALYSIS OF THE NEED FOR THE PROPOSED RULES; HAD THE COMMISSION DONE SO, IT WOULD HAVE FOUND THE PROPOSED RULES ARE UNNECESSARY.**

12. Although it is widely recognized among economists and public policy makers that regulation should be imposed only if there is sound evidence that the unregulated market is failing to perform well, the *Device NPRM* offers no meaningful evidence of a market failure that necessitates additional regulation to meet the statutory goal.<sup>8</sup> Instead, the *Device NPRM* attempts to dismiss the substantial evidence that competition has dramatically increased since Section 629 was enacted, that the marketplace has been offering consumers an increasingly attractive and wide array of means of accessing video programming, and that competition at multiple levels will continue to drive marketplace participants to improve consumers' video access options. The *Device NPRM* does so by offering a stilted and static view of the marketplace and relying on unsound economic claims.

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<sup>8</sup> This recognition follows from the fact that regulation is inherently imperfect and can be subject to "non-market failure." See, also, the introduction to Section III below.

13. Specifically, rather than conduct a proper analysis of the marketplace, the Commission bases its proposed rules on “three fundamental points”:<sup>9</sup>

First, the market for navigation devices is not competitive. Second, the few successes that developed in the CableCARD regime demonstrate that competitive navigation—that is, competition in the user interface and complementary features—is essential to achieve the goals of Section 629. Third, entities that build competitive navigation devices, including applications, need to be able to build those devices without seeking permission from MVPDs, because MVPDs offer products that directly compete with navigation devices and therefore have an incentive to withhold permission or constrain innovation, which would frustrate Section 629’s goal of assuring a commercial market for navigation devices.

As I will now discuss, the Commission fails to apply sound economic analysis and ignores important facts and economic principles that contradict each of what it describes as its fundamental points. Rather than supporting the Commission’s conclusion that pervasive regulation is necessary to achieve the goals of Section 629, marketplace facts show no signs of market failure and reveal that there is strong and growing competition to provide an array of navigation devices—as well as competition to offer video discovery capabilities more generally.

14. I will consider each of the Commission’s three points in turn, both explaining the errors in the Commission’s arguments and demonstrating that the correct application of economic principles to the relevant facts supports the conclusion that there is no market failure justifying pervasive regulation.

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<sup>9</sup> *Device NPRM*, ¶ 12.



**A. THE COMMISSION INAPPROPRIATELY DISMISSES THE SUBSTANTIAL EVIDENCE OF EXTENSIVE DEVICE COMPETITION AND OF COMPETITION IN VIDEO DISCOVERY CAPABILITIES MORE GENERALLY.**

15. Although the Commission’s first fundamental point is the assertion that the market for navigation devices is not competitive, there is substantial evidence to the contrary. The state of the marketplace is now very different than when Congress adopted Section 629 of the Communications Act in 1996. Consumers today have a wide range of equipment options for accessing MVPDs’ video programming and other services (such as smartphones and tablets, neither of which were available in 1996) and this equipment is available from many different vendors in addition to MVPDs and their affiliates. Moreover, industry developments—including substantial growth in video services competition—are leading to even greater consumer choice for navigation devices and for video discovery capabilities more generally.

**1. A wide range of manufacturers compete to offer consumers devices with which to navigate MVPD and other video services.**

16. The *Device NPRM* fails to acknowledge the significance of the fact that there are now software applications operating on many different devices provided by parties other than MVPDs that allow consumers to access and navigate MVPDs’ video programming and other service offerings. These apps are generally known as “TV Everywhere apps” because they allow an MVPD’s subscribers to access MVPD services on a wide range of devices (including mobile phones and tablet computers) at locations of the subscribers’ choosing. All major MVPDs have been driven by competitive pressures to offer TV

Everywhere apps that work on a variety of platforms.<sup>10</sup> Once an MVPD creates an app for a particular operating system, a device manufacturer has no need to obtain permission from the MVPD to create and sell devices that allow consumers to access the MVPD's services.<sup>11</sup>

17. The use of TV Everywhere apps to access MVPD offerings has reached significant levels and is growing.<sup>12</sup> The DSTAC report documented the widespread

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<sup>10</sup> For example, the eight largest MVPDs have all developed TV Everywhere apps for the Android mobile operating system as well as for Apple's iOS operating system. Comcast: <http://customer.xfinity.com/help-and-support/xfinity-apps/xtv-go-app-download-feature-faqs>; Cox: <https://www.cox.com/residential/tv/tv-apps.html>; TWC: <http://www.timewarnercable.com/en/apps/my-twc.html>; DISH: <http://www.dish.com/dish-anywhere/>; Charter: <https://www.charter.com/browse/content/spectrum-tv-app>; AT&T U-verse: <http://uverse.com/uverse/uverseapp>; DIRECTV: [http://www.directv.com/technology/mobile\\_apps/dvr\\_scheduler](http://www.directv.com/technology/mobile_apps/dvr_scheduler); Verizon Fios: <http://www.verizon.com/home/fiosmobileapps>. (All sites visited April 21, 2016.)

See, also, Working Group 4 Report, August 4, 2015, Attached to Public Notice, *Media Bureau Seeks Comment on DSTAC Report*, DA 15-982, August 31, 2015 (hereinafter, *DSTAC WG4 Report*), at 127-28.

<sup>11</sup> The Commission quotes a news article as stating that "some consumer advocates wonder why, if you do want a set-top box, you can't just buy one as easily as you'd buy a cell phone or TV for that matter." (*Device NPRM*, ¶ 11, quoting Nancy Marshall-Genzer, *Why we don't buy cable TV set-top boxes*, MARKETPLACE, August 31, 2015, available at <http://www.marketplace.org/topics/business/why-we-dont-buy-cable-tv-set-top-boxes>, site visited April 21, 2016.) The fact is that you *can* buy a device to access MVPDs' services as easily as you'd buy a cell phone or TV—with an app, your cell phone or smart TV can play the role of a set-top box.

<sup>12</sup> Horia Galatanu, *Growing TV Everywhere Adoption to 70%, Part 1: Three Critical Stages in the Consumer's TV Everywhere Journey*, Adobe Primetime Blog (March 31, 2016), available at <http://blogs.adobe.com/primetime/2016/03/growing-tv-everywhere-adoption-to-70-part-1-three-critical-stages-in-the-consumers-tv-everywhere-journey/>, site visited April 21, 2016 ("At Adobe, we believe that consumer adoption of pay-TV across screens, also known as TV Everywhere, can grow to reach 70% of pay-TV subscribers by

availability and use of apps, noting that there are twice as many “retail devices” in use in the U.S. (*i.e.*, mobile phones, tablets, computers, game consoles, and streaming media devices) as there are set-top boxes, and that 94 percent of those retail devices can be served by at least one MVPD app, and 66 percent can be served by apps from all of the top ten MVPDs.<sup>13</sup> As of July 2015, more than 56 million MVPD apps had been downloaded, “with millions more [downloads] occurring every month.”<sup>14</sup> A study reported that in the first quarter of 2014 “TV Everywhere video consumption grew 246% year-over-year across devices ... [and] 21% of Pay-TV household in the U.S. now access TV Everywhere content across devices and browsers, an increase of 31% over the last six months.”<sup>15</sup> A more recent study by the same firm estimated that the number of “active” (at least once monthly) TV Everywhere users grew to 17.4 percent of pay-TV viewers in the fourth quarter of 2015 (an increase of 36 percent since the fourth quarter of 2014), and the amount of TV Everywhere viewing increased by 102 percent over that same time period.<sup>16</sup> Another study estimated that 40 percent of pay-TV subscribers have used TV

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the end of 2017. It’s a reasonable prediction because there’s already a large and growing audience that’s regularly watching TV programming on connected devices.”).

<sup>13</sup> *DSTAC WG4 Report* at 127.

<sup>14</sup> *Id.* at 127.

<sup>15</sup> Adobe Systems Incorporated, “U.S. Digital Video Benchmark, Adobe Digital Index Q1 2014,” *available at* [http://www.cmo.com/content/dam/CMO\\_Other/ADI/Q12014\\_VideoBenchmark/Q12014\\_VideoBenchmark.pdf](http://www.cmo.com/content/dam/CMO_Other/ADI/Q12014_VideoBenchmark/Q12014_VideoBenchmark.pdf), site visited April 21, 2016, at 3.

<sup>16</sup> Jeff Baumgartner, “TV Everywhere Continues Its Climb,” *Multichannel News*, February 25, 2016, *available at* <http://www.multichannel.com/news/content/tv-everywhere-continues-its-climb/402839>, site visited April 21, 2016; Adobe Systems Incorporated, “U.S. Digital Video Benchmark, Adobe Digital Index Q4 2015,” *available at* <http://www.slideshare.net/adobe/adi-q4-2015-digital-video-benchmark>, site visited April 21, 2016, at 4 and 5.

Everywhere apps, with 23 percent reporting that they use a TV Everywhere app at least once a month.<sup>17</sup> AT&T estimates that between the second and fourth quarters of 2015, the number of subscribers using the DIRECTV app increased by 50 percent.<sup>18</sup>

18. In addition to TV Everywhere apps that allow consumers to use general-purpose computers, tablets, and smartphones to access MVPDs' video services, streaming media players, such as Roku and Apple TV, and streaming media sticks, such as Amazon Fire TV Stick and Google Chromecast, also offer navigation of a wide array of video content. For example, Roku offers access to over 300,000 movies and television episodes, as well as streaming of NBA League Pass and SHOWTIME.<sup>19</sup> In addition, MVPD subscribers can use these devices to access certain channels included in their MVPD subscriptions by using the network's app on the device and completing an authentication process.<sup>20</sup> At present, 47 DIRECTV channels can be authenticated and viewed using Roku, and 50 channels can be authenticated and viewed using an Apple TV, and the number of channels available through authentication on apps continues to grow as DIRECTV secures additional rights from programmers to allow this method of distribution.<sup>21</sup>

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<sup>17</sup> Jeff Baumgartner, "TV Everywhere Usage Climbs: Study," *Multichannel News*, March 24, 2016, available at <http://www.multichannel.com/news/content/tv-everywhere-usage-climbs-study/403575>, site visited April 21, 2016.

<sup>18</sup> "AT&T (T) Earnings Report: Q4 2015 Conference Call Transcript," available at <http://www.thestreet.com/story/13437185/4/att-t-earnings-report-q4-2015-conference-call-transcript.html>, site visited April 21, 2016.

<sup>19</sup> <https://www.roku.com/>, site visited April 21, 2016.

<sup>20</sup> For example, a DIRECTV subscriber with HBO can use the HBO GO app on Roku to view HBO content. (<http://www.engadget.com/2014/01/31/directv-roku-hbo-go/>, site visited April 21, 2016.)

<sup>21</sup> Communication with Bill Belden, DIRECTV, Principal Strategist, Business Development and Strategy, April 17, 2016.

Streaming media devices are increasing in popularity, with the share of TV Everywhere authentications on streaming media players growing from 16 percent in the fourth quarter of 2014 to 21 percent in the fourth quarter of 2015.<sup>22</sup> By the end of 2015, the installed base of streaming media players was projected to be more than 36 million and the installed base of streaming media sticks was projected to be more than 14 million.<sup>23</sup>

19. The Commission attempts to dismiss the evidence of extensive competition:<sup>24</sup>

Certain MVPD commenters ... argue that the popularity of streaming devices such as Amazon Fire TV, AppleTV, Chromecast, Roku, assorted video game systems, and mobile devices that can access over-the-top services such as Netflix, Amazon Instant Streaming, and Hulu, shows that Congress's goals in Section 629 have been met. We disagree. With certain limited exceptions, it appears that those devices are not "used by consumers to access multichannel video programming," and are even more rarely used as the sole means of accessing MVPDs' programming.

The Commission goes on to claim:<sup>25</sup>

In addition, in today's world a retail navigation device developer must negotiate with MVPDs to get permission to provide access to the MVPD's multichannel video programming, on the MVPD's terms. ... The arrangements have not assured a competitive retail market for devices from unaffiliated sources as required by Section 629 because they do not always provide access to all of the programming that a subscriber pays to

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<sup>22</sup> Adobe Systems Incorporated, "U.S. Digital Video Benchmark, Adobe Digital Index Q4 2015," available at <http://www.slideshare.net/fullscreen/adobe/adi-q4-2015-digital-video-benchmark/>, site visited April 21, 2016, slide 7. See, also, <http://www.cmo.com/articles/2016/2/24/adi-q4-digital-video-benchmark-report.html>, site visited April 21, 2016.

<sup>23</sup> SNL Kagan, "Forecasting OTT, TV Everywhere Devices," *Economics of Internet Media*, September 23, 2015.

<sup>24</sup> *Device NPRM*, ¶14.

<sup>25</sup> *Id.*, ¶16. In addition, the NPRM asserts competition is insufficient because "these relationships ... , to date, have only provided access to the MVPD's user interface rather than that of the competitive device." (*Id.*) I will address the Commission claims regarding the need to expand the scope of Section 629 to include user interfaces in Section II.B below.

access, and may limit features like recording.

In making these claims, the Commission misapplies economic principles and misstates or omits important facts.

20. With respect to economic principles, the Commission ignores the principles, which are well recognized among economists, that: (a) competition occurs “at the margin,” and (b) two products or services do not have to be identical to compete with one another. Contrary to the Commission’s implicit claim, it is well recognized among economists that it is not necessary for every consumer to consider one product to be a perfect substitute for another product in order for the two products to compete. Instead, competition for those consumers who do consider the different products to be substitutes can create significant competitive pressures that benefit all consumers.

21. With respect to facts, the Commission claims that the viewer experience using a TV Everywhere app is worse than the experience using a set-top box due to limits on the programming available through TV Everywhere apps.<sup>26</sup> However, the Commission ignores the important fact that the difference between the MVPD programming available through an MVPD’s set-top box and the MVPD programming available on a third-party device through the MVPD’s app or web site is rapidly narrowing. When DIRECTV introduced its TV Everywhere app for iPad in the autumn of 2011, the app initially allowed live streaming of only a few channels and only in the home.<sup>27</sup> Today, DIRECTV

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<sup>26</sup> *Device NPRM*, ¶ 16.

<sup>27</sup> Tom Cheredar, “DirecTV launches complimentary streaming video service on the iPad,” Venturebeat.com, March 21, 2012, *available at* <http://venturebeat.com/2012/03/21/directv-ipad-app-streaming/>, site visited April 21, 2016.

customers can use the DIRECTV app to livestream 148 channels on multiple devices, and 117 of those channels, including many of the most watched channels,<sup>28</sup> can be streamed live outside the home on mobile phones and computers.<sup>29</sup> Similarly, in a recent filing before the Commission, Charter stated that, after completion of its proposed merger with Time Warner Cable, the new company:<sup>30</sup>

will also deploy an advanced mobile video application that will combine the best features of the pre-Transaction companies' apps into one integrated app. The app will include the Spectrum Guide user interface, on demand and "download-to-go" functionality, and the nearly 300 live channels on Time Warner Cable's TV application (TWC TV), creating an "enhanced" customer experience...

22. The fact that there is a gap between the programming available through an MVPD's set-top box and through the MVPD's TV Everywhere app results from the MVPD's need to negotiate for additional distribution rights. Those rights are obtained through negotiation, and as programming contracts are re-negotiated, rights are being expanded to online platforms. Given the complexity of programming contracts and their multi-year terms, it is not surprising that the process of negotiating rights to new forms of distribution take time.

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<sup>28</sup> DIRECTV expected that by the end of 1Q2016, "nearly all of the top 25 cable networks" would be available for livestreaming. ("AT&T (T) Earnings Report: Q4 2015 Conference Call Transcript," available at <http://www.thestreet.com/story/13437185/4/att-t-earnings-report-q4-2015-conference-call-transcript.html>, site visited April 21, 2016.)

<sup>29</sup> The DIRECTV Everywhere app is a free download and can be used on Mac and PC computers, iPads and Android tablets, and iPhones and Android phones. See [http://www.directv.com/technology/directv\\_everywhere](http://www.directv.com/technology/directv_everywhere), site visited April 19, 2016; [https://support.directv.com/app/answers/detail/a\\_id/3624/session/L2F2LzEvdGltZS8xNDU4MTY2MTYxL3NpZC9LV2tCKnU5bQ%3D%3D](https://support.directv.com/app/answers/detail/a_id/3624/session/L2F2LzEvdGltZS8xNDU4MTY2MTYxL3NpZC9LV2tCKnU5bQ%3D%3D), site visited April 21, 2016.

<sup>30</sup> Public Interest Statement, *In the Matter of Application of Charter Communications, Inc., Time Warner Cable Inc., and Advance/Newhouse Partnership For Consent to the Transfer of Control of Licenses and Authorizations*, MB Docket No. 15-149, June 25, 2015, (hereinafter, *TWC-Charter Public Interest Statement*), at 26.



23. DIRECTV approaches each negotiation of programming deals with the goal of expanding and increasing its distribution rights, and substantially all such agreements entered into in the last few years have expanded its distribution rights.<sup>31</sup> DIRECTV executives expect that the gap between the programming available through DIRECTV's set-top box (both on a live-streaming and on-demand basis) and the programming available on DIRECTV's app or web site will be closed sooner than the Commission's proposed regulatory scheme could be put in place.<sup>32</sup> By refusing to recognize this trend, the Commission is failing to take an appropriate, forward-looking view.<sup>33</sup>

24. The Commission has also asserted that MVPDs have made little headway in making their full services available without set-top boxes.<sup>34</sup> Here, too, the Commission is failing to take a forward-looking view. In addition to introducing a TV Everywhere app, DIRECTV has pursued an open model using technology developed by the RVU Alliance that allows a household to navigate DIRECTV's video and other services on multiple TVs without additional set-top boxes. RVU technology provides a remote user interface

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<sup>31</sup> Interview with Bill Ryan, DIRECTV, VP-Associate General Counsel, Business Affairs, March 30, 2016 (providing factual information only).

<sup>32</sup> *Id.*

<sup>33</sup> The Commission also ignores the fact that MVPDs and OVDs are offering skinny in bundle in response to consumer demand and competitive pressures. See, for example, Meg James, "Consumers want fewer TV channels and lower monthly bills - will 'skinny' packages work?" *Los Angeles Times*, August 14, 2015, available at <http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-skinny-bundles-verizon-dish-20150816-story.html>, site visited April 21, 2016; John Koblin, "Unwrapping the Cable TV Bundle," *The New York Times*, October 3, 2015, available at [http://www.nytimes.com/2015/10/05/business/media/unwrapping-the-cable-tv-bundle.html?\\_r=0](http://www.nytimes.com/2015/10/05/business/media/unwrapping-the-cable-tv-bundle.html?_r=0), site visited April 21, 2016; and Jeff Baumgartner, "16% of Pay TV Base Will Be 'Skinny' in 2020," *Multichannel News*, January 22, 2016, available at <http://www.multichannel.com/news/content/16-pay-tv-base-will-be-skinny-2020/396747>, site visited April 21, 2016.

<sup>34</sup> *Device NPRM*, ¶16, footnote 50.



enabling an MVPD to use a single home gateway to distribute content to multiple televisions or other RVU-compliant devices without requiring a set-top box for each device.<sup>35</sup> An RVU-compliant device manufacturer would be free to display the remote user interface of rendered graphics and data from the MVPD alongside content from other sources to create a “shopping mall” of services (comparable to the way in which streaming media players like Roku provide access to content from Netflix, Amazon Prime, Hulu, and others).<sup>36</sup> Just as with a physical mall, the makeup of each “store” is up to the individual provider.<sup>37</sup> Samsung, Sony, LG, and Toshiba already manufacture “smart TVs” that employ the RVU standard and, thus, do not need a set-top box for each TV when paired with DIRECTV service.<sup>38</sup>

25. DIRECTV is not alone in working to make its full services available without set-top boxes. For instance, Charter Cable is offering a service whereby a cable subscriber uses a Roku device to access and navigate the MVPD’s video programming rather than a set-top box provided by the MVPD, and Time Warner has conducted a trial of a similar service in the New York City area.<sup>39, 40</sup>

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<sup>35</sup> Interview with Steve Dulac, DIRECTV, Director, Engineering Technology in the AT&T Entertainment Group (AEG) Video, Space and Communications Organization, March 31, 2016.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> <http://rvualliance.org/products>, site visited April 21, 2016. Because DIRECTV is a satellite-delivered service, at least one device is needed in the home to receive/process that service, even when RVU is in use.

<sup>39</sup> John Eggerton, “Charter Lineup Joins Roku,” *MultiChannel News*, October 12, 2015, available at <http://www.multichannel.com/news/video/charter-lineup-joins-roku/394487>, site visited April 21, 2016; Jeff Baumgartner, “TWC Launches Roku Trial in NYC,”

26. In addition, Comcast recently announced that it has signed an agreement with Samsung to integrate a Comcast Xfinity TV Partner app into Samsung's 2016 smart TVs, that would allow Comcast Xfinity subscribers to access their Xfinity subscription programming (including live and on demand programming) "without the need to lease a set-top box from Comcast."<sup>41</sup> Comcast also announced a similar arrangement with Roku, so that, once implemented later in 2016, Comcast Xfinity subscribers will be able to access their Xfinity subscription via the Comcast Xfinity TV Partner app on a Roku streaming media device, rather than having to use a Comcast set-top box.<sup>42</sup>

27. Finally, AT&T recently announced that DIRECTV will launch three new programming services that, while not themselves MVPD services, allow viewing of

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November 9, 2015, available at <http://www.multichannel.com/news/content/twc-launches-roku-trial-nyc/395196>, site visited April 21, 2016.

<sup>40</sup> The Commission appears to dismiss the importance of existing streaming video devices offered by third-party providers on the grounds that these parties have business relationships with MVPDs. (*Device NPRM*, ¶¶ 16 and 23.) The statute refers to equipment vendors that are "not affiliated" with MVPDs. (47 U.S.C. § 549(a).) Although I am not offering a legal opinion, the Commission's interpretation that an entity is not affiliated with an MVPD only if it has "no business relationship with any MVPD" is clearly inconsistent with my understanding of that term as it is used in economics. (*Device NPRM*, ¶ 23.) The existence of a contractual relationship between two firms generally does not render them "affiliates." Whether or not the Commission has reached a correct interpretation of the statutory language, its interpretation fails to accord with the issues of relevance of consumer welfare (*i.e.*, whether the manufacturers of these devices have sufficient independence that they make available valuable options to consumers, which clearly they do).

<sup>41</sup> Comcast Press Release, "Comcast Launches Xfinity TV Partner Program; Samsung First TV Partner To Join," April 20, 2016, available at <http://corporate.comcast.com/news-information/news-feed/comcast-launches-xfinity-tv-partner-program-samsung-first-tv-partner-to-join>, site visited April 21, 2016.

<sup>42</sup> Comcast Press Release, "Comcast And Roku Bring Xfinity TV Partner App To Roku TVs And Roku Streaming Players," April 20, 2016, available at <http://corporate.comcast.com/news-information/news-feed/comcast-and-roku-bring-xfinity-tv-partner-app-to-roku-tvs-and-roku-streaming-players>, site visited April 21, 2016.

DIRECTV content on a tablet, smartphone, smart TV, streaming media hardware, or computer, without a set-top box. DIRECTV Now will require a subscription and will include both live and on demand programming; DIRECTV Mobile will require a subscription and is designed for use on smartphones; and DIRECTV Preview will be a free, ad-supported service with limited content.<sup>43</sup> These services will be distributed via the Internet and will require neither a subscription to DIRECTV's DBS service nor any DIRECTV equipment.<sup>44</sup>

28. The Commission also appears to dismiss the importance of existing streaming video devices offered by third-party providers on the grounds that these parties have business relationships with MVPDs.<sup>45</sup> The statute refers to equipment vendors that are "not affiliated" with MVPDs.<sup>46</sup> Although I am not offering a legal opinion, the Commission's interpretation that an entity is not affiliated with an MVPD only if it has "no business relationship with any MVPD" is clearly inconsistent with my understanding of that term as it is used in economics. The existence of a contractual relationship between two firms generally does not render them "affiliates." Whether or not the Commission has reached a correct interpretation of the statutory language, its interpretation certainly fails to accord with the issues of relevance of consumer welfare

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<sup>43</sup> AT&T News Release, "AT&T To Launch Three New Ways to Access & Stream DIRECTV Video Content Later This Year," March 1, 2016, *available at* [http://about.att.com/story/three\\_new\\_ways\\_to\\_access\\_and\\_stream\\_directv\\_video\\_content.html](http://about.att.com/story/three_new_ways_to_access_and_stream_directv_video_content.html), site visited April 21, 2016.

<sup>44</sup> *Id.*

<sup>45</sup> *Device NPRM*, ¶¶ 16 and 23.

<sup>46</sup> 47 U.S.C. § 549(a).

(i.e., whether the manufacturers of these devices have sufficient independence that they make available valuable options to consumers, which clearly they do).

29. In summary, an examination of the facts demonstrates that market forces and the current regulatory regime are sufficient to meet the statutory goal of assuring:<sup>47</sup>

the commercial availability, to consumers of multichannel video programming and other services offered over multichannel video programming systems, of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor.

**2. There has been a huge increase in video competition that has led to increased competition in the provision of video discovery capabilities.**

30. Access devices are not the only products for which competition has increased. Since Section 629 was enacted, there has been a huge increase in the competition MVPDs face in the provision of their overall services. This increase in competition creates additional incentives for MVPDs to supply attractive video access devices and discovery capabilities. As one would expect in the light of this competition, MVPDs have improved their video discovery capabilities in addition to developing the apps and business relationships described above that allow their subscribers to access and navigate their video services when and where they want on the device of their choosing.

*(a) Increased Video Competition*

31. At the time Section 629 was enacted, cable subscribers accounted for 89 percent of all MVPD subscribers, overbuilders were scarce, and, although DBS providers had

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<sup>47</sup> *Id.*

entered the market and were growing rapidly, they were still small.<sup>48</sup> The Commission described local markets as highly concentrated with substantial barriers to entry,<sup>49</sup> and the Commission observed that “[i]n all but a few local markets for the delivery of video programming, the vast majority of consumers still subscribe to the service of a single incumbent cable operator.”<sup>50</sup> Since then, DBS MVPDs have grown significantly and now cover the vast majority of the country, and local telephone companies (“telcos”) have also entered in many areas to provide competition to the incumbent cable and DBS MVPDs. Commission data show that, as of 2013, 99 percent of homes have access to at least three MVPDs, and 35 percent have access to at least four MVPDs.<sup>51</sup> The Commission itself has concluded that the MVPD market has become much more competitive over time:<sup>52</sup>

The introduction of DBS MVPDs with national footprints in the 1990s changed the competitive landscape and increased competition in the market for the delivery of video programming... The level of competition increased again with the entry of Verizon in 2005 and AT&T in 2006, two large facilities-based telephone MVPDs that began offering video service in geographic areas already served by incumbent cable MVPDs.

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<sup>48</sup> Third Report, *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 96-133, rel. January 2, 1997 (hereinafter, *Third Video Competition Report*), ¶ 4.

<sup>49</sup> *Id.*, ¶ 121.

<sup>50</sup> *Id.*, ¶ 128.

<sup>51</sup> Sixteenth Report, *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 14-16, rel. April 2, 2015 (hereinafter, *Sixteenth Video Competition Report*), ¶ 31, Table 2.

<sup>52</sup> *Id.*, ¶ 22.

And the Commission recently concluded that the current state of video markets is such that incumbent cable MVPDs should be presumed to face effective competition in local markets nationwide.<sup>53</sup>

32. In addition, MVPDs face competition from online video distributors (“OVDs”) offering over-the-top services (“OTT”), which are delivered over broadband Internet access connections rather than MVPD networks. As a result, today significant amounts of video programming (as well as the equipment necessary to access that programming) are available from sources other than traditional MVPDs. Some of these video services can be accessed using a specialized hardware device used with a television; for example, the Apple TV streaming media player allows a consumer to access video purchased through the iTunes store as well as OTT services such as Netflix and Amazon Prime. More generally, these services are available using an app on a personal computer, tablet computer, game console, mobile phone, or other device.

33. In other proceedings, the Commission has concluded that OVDs place competitive pressures on MVPDs, noting that “MVPDs have responded to cord cutters, cord nevers, cord shavers, and the increased viewing of OVDs by creating and deploying video services similar to those offered by OVDs”<sup>54</sup> and that:<sup>55</sup>

Although MVPDs may consider other MVPDs their foremost rivals, MVPDs increasingly compete with OVDs for viewing time, subscription revenue, and advertising revenue. Individual consumers may perceive OVDs as a substitute, a supplement, and a complement to their MVPD

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<sup>53</sup> *Effective Competition Report and Order*, ¶ 10.

<sup>54</sup> *Sixteenth Video Competition Report*, ¶ 3 (footnote omitted).

<sup>55</sup> *Id.*, ¶ 83.

video service.

The Commission has also stated that:<sup>56</sup>

OVDs continue to expand the amount of video content available to consumers through original programming and new licensing agreements with traditional content creators. Some OVDs like Netflix have invested in their own servers, content delivery networks, and other infrastructure to facilitate the delivery of video programming. Several technology companies, notably Amazon, Apple, Google, and Microsoft, are delivering end-to-end solutions of Internet infrastructure, software, devices, and video programming... Viewing of OVDs' video programming on multiple devices is becoming increasingly prevalent. SNL Kagan estimates that as of 2013, more than 53 million U.S. households watched online programming with at least one Internet-connected device, including computers, game consoles, streaming media players, television sets, and Blu-ray players, with an average of 4.8 such devices per online viewing household.

34. Some networks previously available only as part of an MVPD subscription have subsequently launched their own stand-alone OTT offerings, including HBO (HBO Now, which offers HBO original content and a library of video-on-demand ("VOD") movies), SHOWTIME (which offers live streaming and a VOD library), and STARZ (which offers live streaming and a VOD library).<sup>57</sup> In addition, CBS has launched an OTT channel, CBS All Access, which offers live streaming in areas with a CBS owned and operated

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<sup>56</sup> *Id.*, ¶¶ 9-10.

<sup>57</sup> "HBO Now is on Fire...TV," *Multichannel News*, August 20, 2015, available at <http://www.multichannel.com/news/next-tv/hbo-now-fire-tv/393148>, site visited April 21, 2016; "Showtime Unleashes Stand-alone OTT Service," *Multichannel News*, July 8, 2015, available at <http://www.multichannel.com/news/next-tv/showtime-unleashes-standalone-ott-service/391985>, site visited April 21, 2016; "Starz Launches OTT Subscription App," *Multichannel News*, April 5, 2016, available at <http://www.multichannel.com/news/content/starz-launches-ott-subscription-app/403843>, site visited April 21, 2016.

broadcast station.<sup>58</sup> Other programming networks are available via distributors that assemble packages of content, such as Sony Playstation Vue (which offers an extensive array of channels and local channels in select cities, all accessible through multiple streams over PlayStation, Amazon Fire TV or TV stick, and on iOS devices) and Sling TV (offering channels such as ESPN, AMC, TNT, CNN, Disney, Food Network, HGTV, and History Channel and accessible through streaming media players such as Roku and Amazon Fire TV, or on iOS or Android devices).<sup>59</sup>

35. The Sony PlayStation Vue offers service very much like a traditional MVPD, with live TV, program recording, and on-demand content. This service does not require a set-top box from a traditional MVPD; it currently runs on Sony's PlayStation game console, Amazon's FireTV, and Apple's iPad and iPhone.<sup>60</sup> Also, as previously discussed, AT&T has announced an OTT service streaming DIRECTV content that it plans to offer in the fourth quarter of 2016.<sup>61</sup> This service will require neither a satellite receiver nor a set-top box. The rise of these close substitutes will put even more

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<sup>58</sup> "CBS Eyes Showtime-All Access Skinny Package," *Multichannel News*, March 8, 2016, available at <http://www.multichannel.com/news/ott/cbs-eyes-showtime-all-access-skinny-package/403146>, site visited April 21, 2016.

<sup>59</sup> "PlayStation Vue vs. Sling TV: Cutting the cable cord and keeping live TV, compared," *CNET*, March 22, 2016, available at <http://www.cnet.com/news/playstation-vue-vs-sling-tv-streaming-live-tv-compared/>, site visited April 21, 2016; <https://www.sling.com/programming>, site visited April 21, 2016.

<sup>60</sup> <http://www.cnet.com/news/playstation-vue-vs-sling-tv-streaming-live-tv-compared/> and <https://www.playstation.com/en-us/network/vue/#1>, sites visited April 21, 2016.

<sup>61</sup> See, for example, [http://about.att.com/story/three\\_new\\_ways\\_to\\_access\\_and\\_stream\\_directv\\_video\\_content.html](http://about.att.com/story/three_new_ways_to_access_and_stream_directv_video_content.html), site visited April 21, 2016.



competitive pressure on traditional MVPD services to offer attractive access and video discovery options.

36. In short, the video marketplace is far more competitive today than it was when Section 629 was adopted twenty years ago. There is more competition among MVPDs, and more competition from alternative sources (*e.g.*, OVDs). With respect to the latter, it is important to recognize that imposing costly rules on MVPDs and exempting OVDs would distort competition, ultimately to consumers' detriment. As I will next discuss, it is also critical to recognize that the increased competition among MVPDs and OVDs results in increased access device competition and increased competition to provide video discovery capabilities.

*(b) Increased Competition to Provide Attractive Video  
Discovery Capabilities*

37. One of the important means by which MVPDs compete with one another and with OVDs is by offering consumers increasingly attractive video discovery capabilities. When DIRECTV began service, it offered hundreds of channels compared to only a few dozen offered by the typical cable MVPD at that time. Because of the large number of channels, DIRECTV had to offer video discovery capabilities that would allow the subscriber to easily find and access the content he or she desired. Thus, DIRECTV became the first MVPD to introduce an interactive program guide. As cable MVPDs converted to digital signals, greatly increasing the number of channels on their systems, cable MVPDs worked to improve their video discovery capabilities. With the more recent development of cloud-based services, MVPDs such as Comcast are moving their user interface to the cloud and delivering higher-quality video discovery. For example,

Comcast offers voice-based navigation that allows a user to use plain English to make such requests as “find a 1980s comedy movie.”<sup>62</sup> These developments, along with the growth of app-based navigation such as that employed by Netflix and Hulu are shaping consumer expectations and putting pressure on DIRECTV and other MVPDs to continue to innovate and provide access to their video programming and other services on an attractive array of platforms and devices. For example, as noted in Section II.A.1 above, DIRECTV also has responded to consumer demand by allowing a subscriber to access its programming through third-party streaming media devices, including those of Apple TV and Roku, so long as the consumer is authenticated as a DIRECTV subscriber.<sup>63</sup>

38. Innovation is not limited to Comcast and DIRECTV. In its Public Interest Statement regarding its merger, Charter and TWC discuss the features of the Charter Worldbox:<sup>64</sup>

We will introduce Charter’s new, IP-capable Worldbox CPE and cloud-based Spectrum Guide user interface system. Charter’s advanced Spectrum Guide uses cloud-based technology to deliver a customizable, interactive experience to video subscribers. ... Because Spectrum Guide’s functionality is cloud-based, consumers will be able to benefit from its advanced features using their existing two-way set-top boxes without the wait, disruption, and expense of a new set-top box or a truck roll. Indeed, *Charter has demonstrated how Spectrum Guide in an app form will soon*

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<sup>62</sup> “Comcast Introduces Voice Controlled TV Remote,” May 5, 2015, *available at* <http://corporate.comcast.com/news-information/news-feed/comcast-introduces-voice-controlled-tv-remote>, site visited April 21, 2016.

<sup>63</sup> Interview with Tony Goncalves, SVP Strategy and Business Development, AT&T Entertainment Group, April 5, 2016.

<sup>64</sup> *TWC-Charter Public Interest Statement* at 25, citing Steven Hawley, “Charter Shows New Hybrid ‘Worldbox,’” *CED Magazine* (January 7, 2015), *available at* <http://www.cedmagazine.com/news/2015/01/charter-shows-new-hybrid-worldbox>, site visited April 21, 2016 (discussing Charter’s demonstration of Spectrum Guide on a Roku set-top box at the 2015 International Consumer Electronics Show).

*be able to work with innovative retail devices such as Roku.* [Emphasis added.]

Charter has also stated that:<sup>65</sup>

Charter's Worldbox CPE system represents an advance in set-top box development that will continue to enhance the customer experience with greater capabilities, such as additional simultaneous recordings and increased storage capacity for DVR users. In addition to being compatible with the Spectrum Guide user interface, Worldbox utilizes a downloadable conditional access system and digital rights management platform, which enables Charter to source set-top boxes that lack costly proprietary security systems. Because the Worldbox security system works differently than current set-top boxes, it will provide customers a greater degree of flexibility to take their set-top boxes with them when they move. Deployment of the Worldbox system throughout New Charter's territory will enhance the user experience and enable the more cost-efficient provision of service. Furthermore, our adoption of Charter's downloadable security solution supports the development of devices manufactured by third parties. *As the Commission has explained, cable operators who adopt such systems help meet the Section 629 requirement of "assur[ing] the commercial availability" of navigation devices.* [Emphasis added.]

39. As the discussion above demonstrates, MVPDs compete by offering a wide range of continually improving video discovery capabilities that they integrate with their video services. OVDs do as well. Consumers benefit from this competition among MVPDs and OVDs. The presence of OVDs gives consumers the option to bypass MVPDs entirely now in a way they never could before: by patronizing OVDs, consumers can obtain video access and discovery capabilities completely independently of any MVPD. Even consumers who choose not to patronize OVDs benefit from their presence—the OVDs increase the competitive pressures that drive MVPDs to offer attractive programming access and discovery capabilities to their customers.

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<sup>65</sup> TWC-Charter Public Interest Statement at 26.

40. That this competition occurs between providers offering *integrated* video access and video discovery capabilities should not be surprising. As I discuss in Section II.B.2 below, integration offers efficiency advantages. For this reason, the existence of this competition between integrated providers should not be viewed as a problem or a sign of market failure. In their review of the empirical literature on vertical integration, Lafontaine and Slade reached the following broad findings:<sup>66</sup>

As to what the data reveal in relation to public policy, we did not have a particular conclusion in mind when we began to collect the evidence, and we have tried to be fair in presenting the empirical regularities. We are therefore somewhat surprised at what the weight of the evidence is telling us. It says that, under most circumstances, profit maximizing vertical-integration decisions are efficient, not just from the firms' but also from the consumers' points of view. Although there are isolated studies that contradict this claim, the vast majority support it. Moreover, even in industries that are highly concentrated so that horizontal considerations assume substantial importance, the net effect of vertical integration appears to be positive in many instances. We therefore conclude that, faced with a vertical arrangement, the burden of evidence should be placed on competition authorities to demonstrate that that arrangement is harmful before the practice is attacked.

41. Indeed, as I next discuss, the fact that this integration is occurring in a competitive marketplace is further evidence that there is no market failure that would justify pervasive regulation.

**B. THE COMMISSION'S RATIONALE FOR EXPANDING THE SCOPE OF SECTION 629 HAS NO BASIS IN SOUND ECONOMIC ANALYSIS.**

42. Although the statute seeks to ensure the availability of "equipment" (*e.g.*, converter boxes), the Commission asserts that "competitive navigation—that is, competition in the user interface and complementary features—is essential to achieve the

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<sup>66</sup> Francine Lafontaine and Margaret Slade (2007) "Vertical Integration and Firm Boundaries: The Evidence," *Journal of Economic Literature*, 45(3): 629-685, at 680.

goals of Section 629.”<sup>67</sup> The Commission’s conception of “competitive navigation” is far broader than offering substitutes for equipment provided by MVPDs, which is the stated concern of Section 629. The Commission claims that historical experience—in particular, the failure of the Commission’s CableCARD regime—justifies the expansive rules it has proposed. But the Commission offers only an incomplete and misleading analysis of historical experience. Rather than demonstrating the need for even more-expansive regulations, historical experience is better read as indicating that: (a) CableCARD failed because it attempted to create an artificial market for which there was a lack of consumer demand, and (b) the current marketplace is operating efficiently.

**1. The Commission offers no meaningful analysis of the failure of the CableCARD regime.**

43. There is a broad consensus that the Commission’s CableCARD regime has been a failure, as the Commission itself has admitted.<sup>68</sup> In his recent dissent, Commissioner Pai summarized the failure as follows:<sup>69</sup>

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<sup>67</sup> *Device NPRM*, ¶ 12.

<sup>68</sup> Notice of Inquiry, *In re Video Device Competition; Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, MB Docket No. 10-91, rel. April 21, 2010, ¶ 10.

In the *Device NPRM*, ¶ 7, the Commission asserts that its CableCARD rules drove several innovations. However, although the NPRM identifies several innovations (*e.g.*, high-definition digital video recording), it offers absolutely no evidence that these innovations were, in fact, driven by the CableCARD rules. Instead, the Commission cites three sources, which discuss the attractiveness of certain features of various devices but contain no evidence or claims that the CableCARD regime in any way drove the innovation of those features. (Walter Mossberg, “The HDTV Dilemma: Pay for TiVo’s Recorder Or Settle for Cable’s?,” *The Wall Street Journal*, December 28, 2006, available at <http://www.wsj.com/articles/SB116726248529661013>; Jeff Baumgartner, Netflix To Grace Home Screen Of Samsung’s New CableCARD Box, *Multichannel News*, October 18, 2013, available at <http://www.multichannel.com/news/content/netflix-grace-home-screen-samsung-s-new-cablecardbox/357218>; Jefferson Graham, Review: TiVo Bolt

By implementing the CableCARD regime and the integration ban, the FCC sought to mold the set-top box marketplace to its desired shape. But there is widespread agreement that the Commission’s regulatory intervention has been a massive failure. Indeed, this Notice repeatedly admits the rules failed to achieve their objective. The FCC’s regulations have raised the price of set-top boxes, costing Americans billions of dollars in additional fees. They have increased cable customers’ energy consumption by 500 million kilowatt hours each year, enough to power all the homes in Washington, DC for three months. And they have failed to produce robust competition in the set-top box market. Less than 2% of customers have purchased their set-top box at retail.

44. The Commission asserts that “the few successes that developed in the CableCARD regime demonstrate that ... competition in the user interface and complementary features ... is essential to achieve the goals of Section 629”<sup>70</sup> and “that the few successful CableCARD devices all have something in common: they provide user interfaces that compete with the user interfaces MVPD-provided set-top boxes render.”<sup>71</sup> However, *all* retail CableCARD devices must have their own user interface (as opposed to the MVPD’s user interface).<sup>72</sup> As such, the Commission’s claim that those devices that are “successful” have their own user-interface is meaningless—the Commission would

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stream, DVR + cord shaver, *USA TODAY*, October 12, 2015, *available at* <http://www.usatoday.com/story/tech/2015/11/04/review---tivo-bolt-stream-dvr-cord-shaver/75109560/>, all sites visited April 21, 2016.)

<sup>69</sup> Dissenting Statement of Commissioner Anjit Pai, *In the Matter of Expanding Consumers’ Video Navigation Choices Commercial Availability of Navigation Devices*, MB Docket No. 16-42, CS Docket No. 97-80, rel. February 18, 2016, at 1.

<sup>70</sup> *Device NPRM*, ¶ 12.

<sup>71</sup> *Id.*, ¶ 27.

<sup>72</sup> An MVPD’s proprietary (*i.e.*, branded) user interface may only be used with permission of the MVPD. Any retail CableCARD device that is sold or distributed independent of an agreement with the MVPD must therefore have its own user interface. (*DSTAC WG4 Report* at 14.)

have been equally correct to state that “all unsuccessful products have one thing in common – they have their own user-interface.”

45. The only “support” that the *Device NPRM* offers for its assertion regarding the importance of user interfaces reads in its entirety as follows:<sup>73</sup>

*See, e.g.,* Joshua Goldman, *TiVo Bolt Review: A smaller, faster media box to meet your TV watching needs—at home or away*, CNET, Oct. 30, 2015, <http://www.cnet.com/products/tivo-bolt/> (“These days, digital video recorders aren’t anything special -- cable and satellite companies rent them to their customers for a few bucks a month, and said customers can time-shift their favorite programs to watch at their convenience. So, why invest in a TiVo? Basically, it’s the same reason you’d pay extra for a Mac versus a Windows PC: for starters, that means a best-in class user interface and ease of use.”); Caleb Denison, *Cable or Netflix? Samsung’s Smart Media Player Stops Asking You to Choose*, DIGITAL TRENDS, Oct. 17, 2013, <http://www.digitaltrends.com/home-theater/samsungsmart-media-player-streams-netflix-replaces-your-cable-box/> (“Because the player will work based off of Samsung’s Smart TV interface, we can expect it will offer Samsung’s S-Recommendation engine, which makes content recommendations based on users’ viewing habits.”); *Third Party applications for WinTV-DCR-3250*, HAUPPAUGE, [http://www.hauppage.com/site/products/data\\_dcr3250.html](http://www.hauppage.com/site/products/data_dcr3250.html) (last visited Dec. 30, 2015) (providing a list of user-interface programs that are compatible with Hauppauge’s CableCARD device). *See also* Brent Lang, *Time Warner CEO Jeff Bewkes: ‘Wonder Woman’ Will Bring Females to Comic Book Movies*, VARIETY, Dec. 8, 2015, <http://variety.com/2015/film/news/jeff-bewkes-wonder-woman-comic-book-movies-1201656362/> (Reporting that Time Warner, Inc. Chairman and CEO Jeffrey Bewkes noted “many cable companies have issues with their user interfaces that hinder[] on-demand viewing. They are cumbersome to use and should be streamlined, he maintained.”). *But see* NCTA Comments at 37-38.

46. Remarkably, none of these sources supports the claim that equipment providers must be allowed to offer a user interface to replace that component of an MVPD’s service. Consider each, in turn:

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<sup>73</sup> *Device NPRM*, footnote 86.



- The cited source regarding TiVo’s Bolt streaming media player is a review of its features at the time the device was released. Although the reviewer praises the player’s user interface, the article provides no basis for concluding that the device has been successful or that any success it has enjoyed is due to the user interface.<sup>74</sup> Moreover, DIRECTV offers a set-top box supporting TiVo, which indicates that there is an incentive for MVPDs to adopt competitive interfaces.<sup>75</sup>
- The source regarding Samsung’s Smart Media Player provides no evidence that Samsung’s recommendation engine is used, let alone that it has been a key driver of success. Indeed, the article cited is a review of the Samsung Smart Media Player that was written at the time of its release in 2013, and the article offers no evidence regarding the device’s subsequent level of sales or linking any popularity that it achieved to the user interface. Indeed, a subsequent review in 2015 described the interface as follows: “navigating the Smart Media Player’s menus has a subtle, dated feel—the kind of feeling you get when watching *Seinfeld*, licking an envelope or signing a check. These players had their day, but the world is moving on. Oh well.”<sup>76</sup>
- The next citation merely lists four user-interface programs (Windows Media Center, Hauppauge’s WinTV v7 application, MythTV, and NextPVR) that are

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<sup>74</sup> Joshua Goldman, “TiVo Bolt Review: A smaller, faster media box to meet your TV watching needs—at home or away,” *CNET*, October 30, 2015, *available at* <http://www.cnet.com/products/tivo-bolt/>, site visited April 21, 2016.

<sup>75</sup> “DIRECTV, Meet TiVo,” *available at* [http://www.directv.com/technology/tivo\\_receiver](http://www.directv.com/technology/tivo_receiver), site visited April 21, 2016.

<sup>76</sup> “18 Streaming TV Boxes Ranked from Worst to First,” *Time*, *available at* <http://time.com/134575/best-streaming-tv-boxes/>, site visited April 21, 2016.



compatible with one device. This list is irrelevant to the point the Commission is attempting to make about the supposed importance of having an independent user interface. Moreover, the source provides no information about the success of this device.

- Finally, the last source quotes one cable executive as saying, in effect, that video discovery capabilities could, in theory, be better. The mere fact that the marketplace has not yet produced the ideal offering says virtually nothing about the need for additional competition or competition in some particular form—technological progress and innovation are ongoing, and there is always room for improvement. Moreover, in the same article, the executive praises rival Comcast for its intuitive user interface and says it “should be a model for the industry.”

It is evident that none of these cited sources justifies the Commission’s expansive proposed rules.

## **2. Marketplace experience indicates that bundling is efficient.**

47. Although historical experience does not support the Commission’s claims regarding the need for its conception of “competitive navigation,” this experience does support the conclusion that the marketplace is functioning efficiently and, thus, additional regulation is unwarranted. Specifically, this conclusion can be drawn from the fact that DBS and telco entrants into the MVPD marketplace, as well as incumbent cable companies, all have adopted business models in which customers primarily lease or purchase set-top boxes from their MVPD service providers. If it were efficient for consumers to purchase set-top boxes from third parties, one would have expected to

observe entrants using such a distribution model in order to obtain a competitive advantage and gain market share from incumbents.

48. In fact, DBS providers initially tried a model in which set-top boxes were sold directly to consumers through retail stores and “the unbundled model ... was ... the standard in the early days of satellite TV.”<sup>77</sup> For example, DIRECTV boxes were originally manufactured by Sony and RCA, using specifications provided by DIRECTV, and subscribers bought the boxes at retailers such as Sears and Best Buy and self-installed them. In 2003-2004, DIRECTV began to change its business model. Today, the boxes are provided to DIRECTV by OEMs (*e.g.*, Technicolor, Samsung, Pace, and Humax), and DIRECTV provides the box to the subscriber along with installation services.<sup>78</sup> DIRECTV was prompted to make this change due to competition from cable companies and its DBS rival, DISH Network, which were successful in using an integrated model under which the MVPD provides the set-top box, as well as installation and service, so that the consumer deals with just one entity.<sup>79</sup>

49. Grigorova-Minchev and Hazlett observed that the fact “[t]hat satellite TV providers tried the unbundled model and then abandoned that in favor of the bundled

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<sup>77</sup> Ralitza A. Grigorova-Minchev and Thomas W. Hazlett (2011) “Policy-Induced Competition: The Case of Cable TV Set-Top Boxes,” *Minnesota Journal of Law, Science & Technology*, **12**(1): 279-311, at 302-303.

<sup>78</sup> DIRECTV also offers its customers the options of a TiVo-branded set-top box.

<sup>79</sup> Interview with Steve Dulac, DIRECTV, Director, Engineering Technology in the AT&T Entertainment Group (AEG) Video, Space and Communications Organization, March 31, 2016.

approach suggests that integration of the video service package can be, and has been, efficient.”<sup>80</sup> As Grigorova-Minchev and Hazlett explained:<sup>81</sup>

over time, bundled bargains offered by satellite providers began appearing and independent sales of DBS boxes declined and then vanished. It is not plausible that market power explains the migration in market structure, for the simple reason that neither DirecTV nor EchoStar possessed such power. Moreover, the DBS-wide migration, observed simultaneously for both standards, is consistent with only an efficiency explanation: DBS providers bundled boxes to increase market share against cable operators. The fact that they have been highly successful in this effort is further evidence of efficiency and against the hypothesis that the market restructuring was output-restricting, the sine qua non of monopolistic behavior.

50. AT&T also tried a business model in which U-verse subscribers could obtain a video access and navigation device from another provider. Specifically, in October 2010, AT&T commenced a partnership with Microsoft to allow consumers to access AT&T’s U-verse service using the Microsoft Xbox 360.<sup>82</sup> AT&T offered a \$99 installation kit that allowed an Xbox 360 user to utilize the Xbox console as a set-top box.<sup>83</sup> But in November 2013, AT&T ended the partnership due to a lack of consumer demand.<sup>84</sup>

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<sup>80</sup> Grigorova-Minchev and Hazlett (2011) at 304.

<sup>81</sup> *Id.* at 303.

<sup>82</sup> PR Newswire, “AT&T Extends TV Watching to More Devices With Launch of U-verse TV on Xbox 360,” October 11, 2010, *available at* <http://www.prnewswire.com/news-releases/att-extends-tv-watching-to-more-devices-with-launch-of-u-verse-tv-on-xbox-360-104699739.html>, site visited April 21, 2016.

<sup>83</sup> Jeff Baumgartner, “AT&T U-verse TV To Drop Support For Xbox 360 on December 31: Telco Cites ‘Low Customer Demand,’ Will Issue \$99 Credit to Affected Subscribers,” *MultiChannel News*, November 26, 2013, *available at* <http://www.multichannel.com/news/content/att-u-verse-tv-drop-support-xbox-360-december-31/356856>, site visited April 21, 2016.

<sup>84</sup> *Id.*

51. The experience of OVDs and OTT service providers offers further evidence that the integration of navigation and video services is efficient. These services, including Hulu, Netflix, and Sony PlayStation Vue, provide the content and corresponding guides for navigation. Similarly, streaming media devices such as Roku, Google Chromecast, and Apple TV all bundle the devices with video access and discovery services.<sup>85</sup> In each case, the user accesses and navigates video using the interface provided by the device manufacturer, just as they do with set-top boxes provided by MVPDs.<sup>86</sup> None of these entities entered the market with a strategy of providing data streams intended to allow third parties to create video discovery capabilities of the sort envisioned by the Commission. These companies manifestly did not possess monopoly power at the time they entered. Hence, the most reasonable inference is that offering integrated video discovery capabilities is an efficient way to compete that generates benefits for consumers, not a sign of market failure.

**C. THE COMMISSION’S REVIEW OF MVPD INCENTIVES IS INCONSISTENT, INCOMPLETE, AND MISLEADING.**

52. The Commission’s third fundamental justification for its proposed policy is the claim that “because MVPDs offer products that directly compete with navigation devices

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<sup>85</sup> A general list of features of streaming media players is given in *WG4 Report*, at 203 and 207.

<sup>86</sup> The Roku interface allows the user to search for content across apps (<https://www.roku.com/how-it-works>, site visited April 21, 2016). Google Chromecast users download the Chromecast app to their phone, tablet, or computer to provide the navigable interface ([https://www.google.com/chromecast/tv/explore/?utm\\_source=en-ha-na-sem&utm\\_medium=cpc&utm\\_campaign=tv](https://www.google.com/chromecast/tv/explore/?utm_source=en-ha-na-sem&utm_medium=cpc&utm_campaign=tv), site visited April 21, 2016). Apple TV uses tvOS, an iOS based interface (<http://www.apple.com/tv/>, site visited April 21, 2016).

[they] ... therefore have an incentive to withhold permission or constrain innovation.”<sup>87</sup>

The Commission appears to believe that MVPDs are trying to leverage monopoly power in the provision of video services into the provision of navigation devices used to view such services in order to charge higher prices. This theory does not fit the facts.

53. As a matter of economics, in order for the Commission’s concern about monopoly leveraging to be valid, it would need to establish that: (a) MVPDs have monopoly power, and (b) MVPDs have an incentive to utilize that monopoly power to monopolize a second product (*i.e.*, navigation devices). The Commission does not establish either of these predicates for harm. And, instead of supporting the Commission theory, marketplace facts undermine it. In other words, the Commission’s theory is invalid as applied to this marketplace.

**1. The Commission contradicts itself and the facts by asserting that all MVPDs have monopoly power.**

54. The Commission’s leverage theory is predicated on MVPDs’ possessing monopoly power over video services that can be leveraged into the provision of navigation devices. An MVPD lacking market power would be in a poor position to engage in leveraging. Instead, it would face competitive pressures to adopt efficient arrangements. It is thus a critical mistake that the *Device NPRM* fails to demonstrate that any MVPD has monopoly power, let alone that all do.

55. Market shares are only a starting place for a full analysis of competition and market power. That said, concentration data strongly suggest that at least several

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<sup>87</sup> *Device NPRM*, ¶ 12.

MVPDs do not have monopoly power. For example, in the top 100 DMAs, DISH has median and mean market shares of only 15.2 percent and 12.5 percent, respectively.<sup>88</sup> And the median and mean combined shares of AT&T's U-verse and DIRECTV services is 29.1 percent and 25.6 percent, respectively, with the combined share falling below 20 percent in 23 of the top 100 DMAs.<sup>89</sup>

56. As discussed in Section II.A.2 above, the MVPD marketplace has become much more competitive since the passage of Section 629. The evidence presented in that section contradicts the Commission's assertion of widespread monopoly power. In another proceeding, the Commission recently addressed whether MVPDs should be presumed to operate in an effectively competitive market.<sup>90</sup> The Commission pointed to the vastly changed marketplace in concluding that MVPD services should be considered to be presumptively competitive in local markets nationwide:<sup>91</sup>

In 1993, [just three years before Congress adopted Section 629] ... [i]ncumbent cable operators had captured approximately 95 percent of MVPD subscribers. In the vast majority of franchise areas only a single cable operator provided service and those operators had "substantial

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<sup>88</sup> U.S. Multichannel Operator Subscribers by market, for 2015Q4, SNL Kagan. The mean market share calculation uses total subscribers in each DMA as weights.

<sup>89</sup> *Id.*

<sup>90</sup> The relevant statute defines several forms of effective competition, including:

*Competing Provider Effective Competition*, which is present if the franchise area is (i) served by at least two unaffiliated MVPDs each of which offers comparable video programming to at least 50 percent of the households in the franchise area; and (ii) the number of households subscribing to programming services offered by MVPDs other than the largest MVPD exceeds 15 percent of the households in the franchise area... [Footnote omitted, emphasis in original.]

(*Effective Competition Report and Order*, ¶ 2.)

<sup>91</sup> *Id.*, ¶ 3.

market power at the local distribution level.” DBS service had not yet entered the market, and local exchange carriers (“LECs”), such as Verizon and AT&T, had not yet entered the MVPD business in any significant way. Against this backdrop, the Commission adopted a presumption that cable systems are not subject to Effective Competition... [Footnotes omitted.]

Turning to the present, the Commission stated its conclusion “that adopting a rebuttable presumption of Competing Provider Effective Competition is consistent with the current state of the video marketplace.”<sup>92</sup>

**2. The Commission’s analysis of MVPDs’ leverage incentives is incomplete, incorrect, and misleading.**

57. As noted above, the Commission appears to believe that MVPDs are trying to leverage monopoly power in video services into equipment monopolies. However, even if, *arguendo*, it were true that MVPDs could earn profits on the sale of equipment because of monopoly power in the supply of MVPD services, well-established economic logic establishes that MVPDs would not have financial incentives to inefficiently monopolize equipment markets.

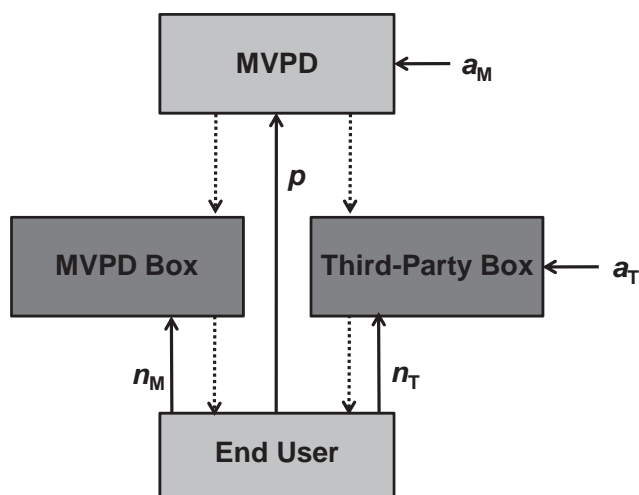
58. Figure 1 provides a useful framework to illustrate the error in the Commission’s thinking.<sup>93</sup>

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<sup>92</sup> *Id.*, ¶ 10.

<sup>93</sup> There are others. For example, a consumer might access an MVPD’s services without making use of any set-top box at all (*e.g.*, rely on a tablet-based app).

**Figure 1.**  
**Pricing and Set-top Box Competition**



The solid lines indicate revenue flows, while the dashed lines indicate information and programming flows. The label  $p$  denotes the fee charged by the MVPD to the end user for video services;  $n_M$  denotes the fee that the MVPD charges the end user for an MVPD-provided set-top box, while  $n_T$  denotes the corresponding fee charged to the end user by a third-party set-top box provider. Figure 1 illustrates a situation in which the MVPD and third-party set-top box provider can also earn revenues from other sources, such as the sale of advertising, with these alternative revenue streams denoted  $a_M$  and  $a_T$  for the MVPD and third-party provider, respectively.

59. Rather than having incentives to block set-top box competition, the MVPD would have incentives to promote it if the third party were a more efficient provider. If it were more efficient to have the third party sell the set-top box, then the MVPD could earn greater profits by raising  $p$  and relying on the third party to provide boxes to consumers.



From the MVPD's perspective, such a strategy would be straightforward to implement because third parties already manufacture set-top boxes to MVPD specifications, and MVPD services are also available on apps that run on widely available mobile operating systems.

60. The fact that MVPDs have incentives to promote efficient third-party sales can be demonstrated algebraically. Suppose, hypothetically, that a third party were able to manufacture and distribute set-top boxes at a cost of  $c$  per set-top box, while the MVPD's cost was  $C$  per box, where  $0 < c < C$ . Let  $K$  denote the MVPD's other costs per subscriber incurred to provide its service. It is instructive to compare two possible strategies:

- First, suppose that the MVPD monopolized set-top boxes by refusing to allow subscribers to access its content using any third-party boxes. Denote the MVPD's prices by  $p^M$  and  $n^M$ . The MVPD would earn  $p^M - K + n^M - C$  per subscriber.
- Alternatively, suppose instead that the MVPD set its prices equal to  $p^O$  and  $n^O$ , where  $p^O = p^M + n^M - C$  and  $n^O = C$ , and announced that subscribers were free to lease (or purchase) boxes from third parties. The MVPD would earn  $p^O - K + n^O - C$ , which is equal to  $p^M + n^M - C - K$ , from each subscriber who also leased a box from the MVPD. This is the same amount that it would have earned under the first strategy. Notice that the MVPD would earn  $p^O - K = p^M + n^M - C - K$  from each subscriber that leased a box from the third party, which is the same amount that it would earn if the consumer leased a box from the MVPD.

The comparison of the MVPD's profits under the two strategies reveals that the MVPD has no financial incentive to eliminate competition. Indeed, the MVPD could profit from the existence of the third-party set-top box provider to the extent that the third party charged consumers less than  $C$ , which would allow the MVPD to increase its revenues and profits by raising the price of its MVPD service,  $p$ .

61. The general issue of whether a firm has an anticompetitive incentive to tie or bundle one product with another product has been addressed in the law and economics literature. This literature generally finds that anticompetitive tying and bundling will not occur if the firm lacks monopoly power in one product and that even a firm with monopoly power might or might not have incentives to engage in anticompetitive tying and bundling depending on the particular circumstances of the markets in question.<sup>94</sup> Most relevant for the present proceeding, the relevant economic principles indicate that a firm with monopoly power in the supply of one product generally has *no* incentive to attempt to inefficiently monopolize a second product if the firm could achieve the alleged effects without engaging in tying or bundling and if the tying would have no effects on competition in the market in which the firm already has monopoly power.<sup>95</sup>

62. In the case of MVPD services and set-top boxes, both of those conditions are met. First, under some circumstances, a firm with monopoly power in the supply of one

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<sup>94</sup> See, generally, David S. Evans and Michael Salinger (2005) Why Do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law,” *Yale Journal of Regulation*, **22**(1): 37-89; Barry Nalebuff, “Bundling, Tying, and Portfolio Effects,” DTI Economics Paper No. 1, February 2003.

<sup>95</sup> See Barry Nalebuff, “Bundling, Tying, and Portfolio Effects,” DTI Economics Paper No. 1, February 2003, at 69-83, for a discussion of economic rationales for tying the sale of one product to another.

product can have incentives to tie it to a second product that consumers use in varying proportions. Under these conditions, the firm may be able to use the tied product as a metering device that facilitates price discrimination.<sup>96</sup> The possibility of metering does *not* create incentives to inefficiently tie set-top boxes to MVPD services. The reason is that MVPDs can—and do—charge consumers for programming delivered to additional receivers as a sensible means of relating pricing to consumer benefits.<sup>97</sup> Hence, if an MVPD wishes to engage in metering, there is no need to rely on a tie to do so.<sup>98</sup>

63. Second, there are some circumstances in which a firm with monopoly power in one market can have incentives to monopolize a second market in order to deter certain strategies that other firms might use to enter the market in which the firm originally possesses monopoly power. Consider a hypothetical example. Suppose that an MVPD had a monopoly and that access to set-top boxes was essential for any other firm to

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<sup>96</sup> *Id.*, at 70-71.

<sup>97</sup> For instance, DIRECTV:

allows you to connect more than one television in a single household to our services. The programming you request for the primary access card in your receiver is copied to all of the access cards in the other receivers, and you are authorized to receive the same level of programming on those televisions. There is a \$7.00/month additional fee for your secondary and each additional receiver.

([https://support.directv.com/app/answers/detail/a\\_id/1869/~do-i-have-to-pay-a-full-monthly-subscription-rate-for-additional-receivers%3F](https://support.directv.com/app/answers/detail/a_id/1869/~do-i-have-to-pay-a-full-monthly-subscription-rate-for-additional-receivers%3F), site visited April 21, 2016.)

<sup>98</sup> *Inter alia*, the Commission seeks comment on whether to (a) prohibit service charges for viewing on more than one device, and/or (b) ban “additional outlet” fees. (*Device NPRM*, ¶ 86.) Such a ban would be a poor policy for at least two reasons. First, it would create the very mis-incentives that the Commission claims to be seeking to redress. Second, charging consumers based on the intensity of their usage is an efficient and, many would argue, fair way to recover costs. Those who consume more streams are deriving greater value. Consider the extreme in the other direction—one person could obtain a subscription and then allow all of his neighbors to use that one subscription to access the content for free.

compete against the MVPD. Moreover, suppose that the MVPD had the ability to foreclose all other firms from having sufficient access to sources of set-top boxes to be viable as MVPDs. Then, by hypothesis, the firm would be able to use its monopolization of set-top boxes to foreclose entry into MVPD services. The conditions of this hypothetical example manifestly do not apply to the actual marketplace. There are many actual and potential suppliers of set-top boxes with which an MVPD could enter into contracts. Moreover, as discussed above, new video entrants are choosing competitive strategies that do not rely on traditional set-top boxes at all. Not surprisingly, the *Device NPRM* offers no evidence of foreclosure in the market for set-top boxes that is harming competition in the video marketplace.

64. Other analysts have reached similar conclusions regarding the lack of leveraging or foreclosure incentives. For example, Beard, *et al.* stated:<sup>99</sup>

First, in contrast to the common view that the self-supply model of set-top boxes is anticompetitive and anti-consumer, our theoretical analysis reveals that the set-top box conveys no market power to the MVPD, even if we assume that the provider of multichannel video services is a monopoly. Set-top boxes are necessary appendages (i.e., complements) to subscription video services and, as such, the provider can obtain all profits from the service itself.

Second, our analysis indicates that the MVPD has no anticompetitive preference for self-supply. If the equipment can be produced more efficiently and sold at a lower price in a competitive retail market, then the provider will embrace such a market to the benefit of both provider and consumer. However, if the equipment can be sold at a lower price through self-supply, then the providers will prefer that option, which will also benefit both provider and consumer.

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<sup>99</sup> T. Randolph Beard, George S. Ford, Lawrence J. Spiwak, and Michael Stern (2012) “Wobbling Back to the Fire: Economic Efficiency and the Creation of a Retail Market for Set-top Boxes,” *CommLaw Conspectus*, **21**(1): 1-58, at 4.

Similarly, Grigorova-Minchev and Hazlett found that<sup>100</sup>

Despite a lengthy regulatory attempt by the FCC to implement a workable regime for creating a retail market for cable STBs, such market has not developed. Moreover, the stated concern driving this regulatory initiative, that bundling cable STBs with MVPD services impairs competition in either video or STBs, appears unwarranted. The attempt by competitive entrants, notably satellite TV providers, to operate with unbundled boxes was itself a dead-end; market evolution brought STBs back into the service provider's product bundle. Lacking market power, these firms ostensibly integrated to pursue efficiencies, not foreclosure.

65. One might ask: If an MVPD would not profit from engaging in monopoly leveraging into set-top boxes and the provision of video discovery capabilities, then why do MVPDs oppose the Commission's proposed rules? As I discuss in the next section, the answer lies in the fact that the Commission's rules would create an artificial industry structure that will very likely suffer from severe market failure. In other words, the Commission's proposed rules will destroy value for MVPDs, programmers, and consumers.

### **III. THE NPRM FAILS TO PROVIDE ANY MEANINGFUL ANALYSIS OF THE EFFECTS OF THE PROPOSED RULES, WHICH WILL BE TO HARM COMPETITION AND CONSUMERS.**

66. In the previous section, I demonstrated that regulatory intervention is not needed to promote competition in the provision of either access devices or video discovery capabilities. In the present section, I address the question of how the proposed regulations would affect competition and consumer welfare.

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<sup>100</sup> Grigorova-Minchev and Hazlett (2011) at 305.

67. The *Device NPRM* itself provides no substantive analysis of the likely actual effects of the proposed regulations. There is no assessment of whether there is consumer demand for such services, and the *Device NPRM* contains no meaningful analysis to support a prediction that the proposed artificial market will be any more successful than the failed CableCARD regime. The fact that the Commission has established neither that there is a pervasive market failure nor that its proposed regulations will have their intended effects is a critical shortcoming because, as the Commission itself has previously recognized, “regulations have the potential to stifle growth, innovation, and technical developments at a time when consumer demands, business plans, and technologies remain unknown, unformed or incomplete.”<sup>101</sup> As summarized by DSTAC Working Group 4:<sup>102</sup>

There is considerable economic and academic literature documenting that the risks of nonmarket failure and the costs to innovation are particular high when the government intervenes in new markets that are rapidly evolving—such as we have in the converging communications, media, and IT industries today.

68. In fact, as I will demonstrate in the remainder of this section, it is very likely that the proposed regulation will fail. That is—in addition to being unnecessary—the Commission’s proposed rules can be expected to harm consumers. Economic analysis indicates that implementing the proposed rules would do so by diminishing and distorting competition in ways that would raise prices while lowering service quality and reducing

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<sup>101</sup> Report and Order, *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices*, 13 FCC Rcd 14775, rel. June 24, 1998, ¶ 15, as cited by *DSTAC WG4 Report* at 162.

<sup>102</sup> *DSTAC WG4 Report* at 163.

innovation and investment in programming, video discovery capabilities, and MVPD services more broadly.

69. There are at least five economic mechanisms through which the proposed rules would adversely affect competition and consumers. Below, I consider each, in turn.

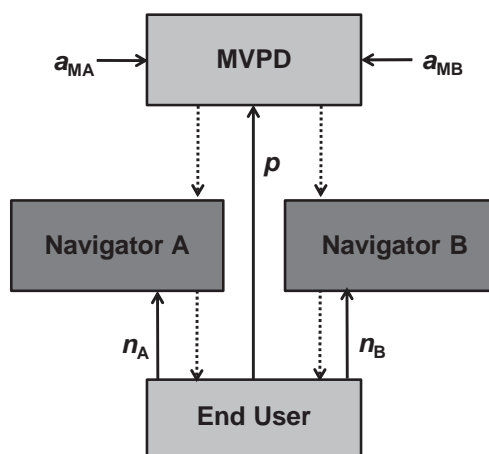
**A. BY DESTROYING PRICE SIGNALS, THE PROPOSED REGULATIONS WILL VERY LIKELY REDUCE SERVICE QUALITY, INNOVATION, AND INVESTMENT.**

70. At the most fundamental level, the Commission proposes to create an artificial market structure that will almost certainly give rise to market failure. The resulting harms will take several forms, including reduced innovation and investment by programmers and MVPDs, and reductions in the quality of video services.

**1. The general economic mechanism of harm**

71. Figure 2 illustrates the fact that video discovery capabilities constitute a platform connecting consumers with MVPDs and the programmers providing content to the MVPDs.

**Figure 2.**  
**Pricing and Set-top Box Competition**



As shown in the figure, the end user may choose to connect to the MVPD through either of two video discovery providers, Navigator A and Navigator B. In practice, one of the video discovery providers might be owned by the MVPD, but to highlight the issues most clearly, suppose that both are independent of the MVPD.

72. Once the end user has chosen a particular navigator, the MVPD can reach that end user only through the end user’s chosen navigator.<sup>103</sup> Thus, the end user makes the choice of platform for both the MVPD and the end user.

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<sup>103</sup> Consequently, the navigator takes on a gatekeeper role. In another proceeding, the Commission has taken the view that a platform can harm competition and innovation in its gatekeeper role even if the platform does not have a large market share. (See, e.g., Report and Order on Remand, Declaratory Ruling, and Order, *In the Matter of Protecting and Promoting the Open Internet*, 30 FCC Rcd 5601, rel. March 12, 2015, ¶ 84.) In the present matter, the Commission’s logic would imply that a third-party navigator can harm competition and innovation if end users would not be “fully responsive” to actions taken by third-party navigators that are harmful to MVPDs and programmers.



73. The end user's choice of navigator can affect the MVPD's economic welfare. For example, suppose that Navigator *A* forwards the MVPD's video signal to the end user without altering its content, while (as it would be able to do under the Commission's proposed rules) Navigator *B* strips the ads sold by programmers and the MVPD out of the MVPD's signal and replaces them with ads sold by Navigator *B* before the signal reaches the end user. The MVPD will earn less in advertising revenue when the end user chooses Navigator *B* rather than Navigator *A*. Similarly, programmers will earn less in advertising revenue when the MVPD reaches consumers through Navigator *B* and, thus, will tend to demand higher license fees from the MVPD the more they expect end users to choose Navigator *B*.<sup>104</sup> Through these mechanisms, the MVPD's revenues will be lower and costs higher when the end user chooses Navigator *B* instead of Navigator *A*.<sup>105</sup>

74. In a well-functioning market, there would be price signals to guide the consumer to choose a video discovery provider that is jointly optimal for both platform users (*i.e.*, the end user and the MVPD).<sup>106</sup> Specifically, the MVPD would charge its subscriber a higher price when he or she chose Navigator *B* rather than Navigator *A*. The price

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<sup>104</sup> The Commission's rules would make this problem particularly acute because third-party video discovery providers would be free to change the amount of advertising at any time, including after programmers had reached contracts with MVPDs. Consequently, a programmer might have to assume the worst when negotiating fees with MVPDs.

<sup>105</sup> Note that this calculation focuses solely on the adverse effects on the MVPD's revenues and costs for non-navigational elements of its services.

<sup>106</sup> See, for example, David S. Evans (2009), "Background Note" in *OECD Policy Roundtable: Two-Sided Markets*, at 24:

Two-sided platforms must coordinate the interdependent demands of two distinct groups of customers, who need to interact with each other. To internalize the indirect network externalities across these two groups they resort to price and non-price strategies that can be very different from those of firms that do not serve different mutually dependent customer groups.

difference would be equal to the sum of the reduced revenues (measured as a positive number) and increased costs suffered by the MVPD as the result of the subscriber's choice of Navigator *B*. This price differential would internalize the effects of the consumer's choice on the MVPD and, thus, create incentives for the consumer to choose the navigator that maximized the total benefits jointly enjoyed by the MVPD and the consumer. Importantly, doing so would promote consumer welfare because once the total benefits were maximized by the consumer's choice of navigator, competition would drive the MVPD to offer those benefits to the consumer.

75. The *Device NPRM* is unclear as to whether an MVPD would be allowed to practice this efficient, differential pricing.<sup>107</sup> At a minimum, the MVPD would risk being (incorrectly) accused of engaging in anticompetitive price discrimination.<sup>108</sup> The risk would be even greater if the MVPD owned Navigator *A*. A clear statement by the

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<sup>107</sup> It is notable in this regard that, in an earlier proceeding, the Commission chose to adopt a rule that requires cable operators to reduce the price of packages that include set-top box rentals by the cost of a set-top box rental for customers who use retail devices, and prohibits cable operators from assessing service fees on consumer-owned devices that are not imposed on leased devices.

(Third Report and Order and Order on Reconsideration, *In re Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment; Oceanic Time Warner Cable, a subsidiary of Time Warner Cable, Inc.; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc., Oceanic Kauai Cable System; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc., Oceanic Oahu Central Cable System; Cox Communications Inc., Fairfax County, Virginia Cable System; Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, 25 FCC Rcd 14657, rel. October 14, 2010 (hereinafter, *Commercial Availability III*), ¶ 4.)

<sup>108</sup> Whether or not one believes such pricing would constitute price discrimination, it would not be anticompetitive: the consumer would have an incentive to choose the navigator that generated the highest benefits for the platform users—this outcome would constitute competition on the merits.

Commission that such differential pricing would be allowed would provide useful clarity. However, such a statement seems quite unlikely. Indeed, given that the thrust of the Commission's proposed policy is to create an artificial market for third-party video discovery capabilities, the Commission would seem more likely to ban such pricing than to bless it.<sup>109</sup>

76. With such a ban in place, there will be a lack of price signals to internalize the external effects of subscribers' choices of video discovery capabilities. Consumers' choices will thus be distorted by the Commission's proposed policy. These distortions will arise whether a consumer is choosing solely among third-party video discovery providers or is comparing an MVPD's video discovery capabilities with those of one or more third-party providers.<sup>110</sup> As a general matter, distortions in competition undermine

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<sup>109</sup> This issue is addressed, in part, by *Device NPRM*, ¶¶ 84 and 85.

If the Commission imposed no limits on differential pricing, then an MVPD would be free to price in such a way as to ensure that no consumer ever chose a third-party video discovery provider (*e.g.*, by setting a very high price for MVPD services other than video discovery and negative prices for MVPD video discovery capabilities). In this respect, some sort of price regulation is an inevitable consequence of the *Device NPRM*'s proposed regulatory regime. One could not rely on antitrust enforcement as a substitute because (for sound economic reasons) antitrust policy in the United States does not impose a general duty to deal of the sort the Commission seeks to impose.

In any event, even a blessing would not address the other sources of harm from the Commission's proposed regulations addressed in the subsequent parts of the present section.

<sup>110</sup> One might have thought that the MVPD could price its own video discovery capabilities to internalize all of the effects on the remainder of its MVPD services and, thus, induce consumers to make efficient choices. This view is mistaken. One reason is that different third-party video discovery capabilities could have different effects on the MVPD's advertising revenues and programming costs. It would thus be necessary for the MVPD to charge different prices for its video discovery capabilities depending on which third-party navigator the consumer would otherwise choose. The MVPD is very unlikely to have such information, and it is highly unlikely that the Commission would allow such pricing.

economic efficiency and can be expected to harm consumers. With undistorted competition, those suppliers that offer the most attractive and efficient product and services tend to prevail, which creates incentives to offer such products and services. When competition is distorted, suppliers prevail in the marketplace for reasons other than the merits of their products and services, which reduces providers' incentives to offer ones that maximize the benefits generated for society. Consumer welfare is thus likely to be harmed.

77. One of the most direct ways that consumers would be harmed can be seen by considering Figure 2 again. As before, suppose that Navigator *A* forwards the MVPD's video signal to the end user without altering its content, while Navigator *B* strips the ads sold by programmers and the MVPD out of the MVPD's signal and replaces them with ads sold by Navigator *B* before the signal reaches the end user, which lowers the MVPD's advertising revenues and raises its costs. Also suppose that some subscribers choose Navigator *A*, while others choose Navigator *B*. The effects of Navigator *B*'s actions on the MVPD's costs and revenues will drive the MVPD to increase  $p$ . As a result, subscribers using Navigator *A* will be harmed by Navigator *B*'s actions. In addition, although it is possible that Navigator *B* might pass some of its increased advertising revenue to its own customers by lowering  $n_B$  or increasing the quality of its offering, there is no guarantee that this pass through will be sufficient to offset the increase in  $p$  that Navigator *B* has triggered.

78. A supporter of the Commission's proposed rules might argue that payments from MVPDs and programmers to video discovery providers could solve the problems triggered by the missing prices because the proposed rules do not prohibit the MVPD

from paying the navigator to take (or refrain from) certain actions.<sup>111</sup> Such payments would *not* solve the problem, however, and might even worsen it. First, payments by either programmers or MVPDs to video discovery providers would increase the MVPDs' costs and lower programmers' investment incentives and, thus, would give rise to the consumer harms associated with higher costs and reduced investment incentives described above.<sup>112</sup> The possibility of such payments might worsen the problem because video discovery providers might threaten to take actions detrimental to programmers and MVPDs purely as a means of extracting payments, again driving up costs and, ultimately, the prices paid by MVPD subscribers.<sup>113</sup>

79. Application of bargaining theory demonstrates why the latter problem could be a serious one. Leading economic theories of bargaining demonstrate that disagreement points (*i.e.*, the economic payoffs that the bargaining parties will earn if they fail to reach

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<sup>111</sup> Although the Commission's rules ban an MVPD from requiring that a navigator enter into a business relationship with the MVPD, the proposed rules do not ban a third-party navigator from entering into such a relationship voluntarily.

<sup>112</sup> One should avoid misapplying the Coase Theorem to reach the conclusion that the allocation of property rights in this situation is irrelevant. First, there would be transactions costs and asymmetric information, so that the bargaining between programmers, MVPDs, and video discovery providers would not be frictionless as assumed by the theorem. Second, some parties—notably end users of other video discovery capabilities—would not be fully represented in the bargaining and would be harmed by the outcome. I focus on this second effect in the text.

<sup>113</sup> In terms of Figure 2 above, suppose that the MVPD were forced to make payments to Navigator A to prevent the navigator taking actions solely intended to degrade the MVPD's signal in the event payment were not forthcoming. These payments would represent an increased cost of providing MVPD service. Hence,  $p$  would rise, which would harm users of Navigator B even if Navigator A lowered the fees it charged its customers. And, similar to the discussion in the text, Navigator A's customers likely would be harmed as well.

agreement) play a key role in determining the bargaining outcome.<sup>114</sup> The reason is that the disagreement points provide a baseline from which each party can assess its gains from reaching a particular agreement. All else equal, the less favorable is a party's disagreement point, the weaker is its bargaining position. Conversely, all else equal, the more favorable is a party's disagreement point, the stronger is its bargaining position.

80. The Commission's proposed rules would affect disagreement points. Absent the proposed rules, a third-party video discovery provider would be unable to engage in such activities as inserting advertising or changing channel placement without obtaining the agreement of affected programmers and MVPDs. Under the Commission's proposed rules, however, the video discovery provider would be free to act even in the absence of agreement. This shift dramatically weakens the bargaining positions of programmers and MVPDs,<sup>115</sup> and dramatically strengthens the bargaining positions of video discovery providers. As a result of this shift, one would expect programmers to have increased costs as the result of bargaining with video discovery providers—costs that ultimately will be passed on to consumers in whole or part.

81. Ironically, the Commission proposes to impose a pricing policy of the exact type that the U.S. Department of Justice ("US DOJ") has found to be anticompetitive and harmful to consumers. Specifically, the US DOJ sued American Express, MasterCard,

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<sup>114</sup> John F. Nash (1950), "The Bargaining Problem," *Econometrica*, **18**(2): 155-162; Ariel Rubinstein (1982), "Perfect Equilibrium in a Bargaining Model," *Econometrica*, **50**(1): 97-109; Ken Binmore, Ariel Rubinstein, and Asher Wolinsky (1986), "The Nash Bargaining Solution in Economic Modelling," *The RAND Journal of Economics*, **17**(2): 176-188; John Sutton (1986), "Non-Cooperative Bargaining Theory: An Introduction," *The Review of Economic Studies*, **53**(5): 709-724.

<sup>115</sup> I will not address the legal issue of whether this constitutes a taking.

and Visa credit and charge card networks to restore missing price signals.<sup>116</sup> The card networks serve as platforms between merchants and their customers. The networks had policies that prohibited merchants from charging price differentials to their customers that reflected the differential charges that the networks levied on merchants. The DOJ argued, and the trial court concluded, that such a policy stifles competition and harms consumers, and does so, in part, by raising the prices that merchants are driven to charge consumers (including consumers who do not utilize the credit cards at issue) as the result of higher credit card costs.<sup>117</sup> In the present instance, MVPDs are analogous to merchants and the Commission's likely ban on differential pricing is analogous to the card networks' pricing prohibitions. Here, too, the policy would harm competition and consumers.

82. In the absence of appropriate price signals, competition among video discovery capabilities will not solve the problem. Although competition will drive third-party providers to offer services that consumers find attractive, competition—including competition from MVPD-provided video discovery capabilities—may do nothing to create incentives for third-party providers to take into account the effects of their actions on those MVPD subscribers who utilize other video discovery providers. In other words, if a third-party video discovery provider can adopt a strategy that will benefit its customers while harming the customers of other video discovery providers, then it will have (mis)incentives to do so. If anything, competition can heighten these incentives by

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<sup>116</sup> I was retained by the US DOJ as a testifying expert witness in that matter.

<sup>117</sup> *United States of America, et al. v. American Express Company, et al.*, 10-CV-4496 (NGG) (RER) (E.D.N.Y., February 19, 2015), at 98-127.

increasing the degree to which consumers shift their patronage to the provider that has benefited its customers while harming those of other video discovery providers.

83. Lastly, it should be noted that, although competitive pressure created by MVPDs' pricing of their video discovery capabilities cannot solve the problem identified above, regulating those prices would very likely make the problem worse. Under the Commission's proposed rules, non-MVPD video discovery providers would be free to subsidize their offerings and, given the business models of many of the large tech firms that might be expected to become video discovery providers, such subsidization seems likely. Moreover, given the interrelationships of various components of an MVPD's services, determining whether its video discovery offerings were being cross subsidized could be a very difficult accounting exercise in practice, increasing both the administrative cost of regulation and the likelihood of error. For these reasons, the "Commission's previous determination that '[a]pplying the subsidy prohibition to all MVPDs would lead to distortions in the market, stifling innovation and undermining consumer choice'" was—and is—correct.<sup>118</sup> Hence, the Commission should not impose price floors on MVPD equipment sales.<sup>119</sup>

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<sup>118</sup> *Device NPRM*, ¶ 85.

<sup>119</sup> The Commission has concluded that it has the discretion not to impose floors:

We note that, although Section 629(a) of the Act states that the Commission "shall not prohibit" any MVPD from offering navigation devices to consumers if the equipment charges are separately stated and not subsidized by service charges, it does not appear to affirmatively require the Commission to require separate statement or to prohibit cross-subsidies. In the Commission's 1998 *Report and Order*, which implemented Section 629, the Commission rejected the argument that Section 629's requirements are "absolute" and that the section "expressly prevents all MVPDs from subsidizing equipment cost with service charges." [Footnotes omitted.]



**2. The proposed regulations will undermine advertising-supported business models and can be expected to harm consumers by triggering higher prices for MVPD services.**

84. In this part and the next one, I consider two specific applications of the general principle of harm just described. First, the proposed rules set no limits on advertising inserted into programming.<sup>120</sup> This is an important policy defect because increased advertising degrades the quality of programming, and the use of advertising by a video discovery provider can impose harm on programmers, MVPDs, and consumers. For example, if a video discovery provider inserted a heavier ad load into certain programming, then that programming would be less attractive to some users and, thus, it might suffer audience losses. The video discovery provider might find that the increased advertising revenues it obtained through this strategy would more than offset any decline in the number of its customers triggered by consumer dissatisfaction with the advertising.<sup>121</sup> By contrast, the programmer would suffer from reduced revenues from the sales of its own ads as viewers were driven away from its programming by the insertion

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(*Id.*, ¶ 82.)

<sup>120</sup> Although the Commission “tentatively conclude[s] that Service Discovery Data need not include descriptive information about the advertising embedded within the program, to ensure that competitive Navigation Devices do not use that data to replace or alter advertising,” (*Device NPRM*, footnote 232), third-party users of the Commission’s three mandated information flows “would be able to overlay advertising on top of the MVPD content.” (Declaration of Steve Dulac, DIRECTV, Director, Engineering Technology in the AT&T Entertainment Group (AEG) Video, Space and Communications Organization, April 22, 2016.)

<sup>121</sup> For the reasons discussed in Section III.D below, the customer losses suffered by the video discovery provider are likely to be especially low under the Commission’s proposed rules.

of the video discovery provider's ads,<sup>122</sup> but the programmer would not share any of the advertising revenues collected by the video discovery provider for its additional ads. The MVPD would suffer similar losses. Because, under the Commission's proposed rules, the video discovery provider would be free to use the three information streams how it saw fit without the consent of either the programmer or MVPD, the video discovery provider would have little or no financial incentive to take the harm to the programmer and MVPD into account in choosing its strategy.

85. As described above in the earlier discussion of a video discovery provider that stripped out ads sold by programmers and MVPDs, the actions of a video discovery provider that increased the ad load would lead to higher programming fees and diminished MVPD advertising revenues, both of which would create upward pressure on MVPD subscription fees and harm consumers. In addition, by reducing the economic returns earned by programmers, actions such as ad substitution and ad insertion would reduce programmers' investment incentives and could further harm consumers by reducing programming quality and variety.

**3. The proposed regulations will undermine contracting between content owners and MVPDs and weaken the ability of cable networks to promote their services.**

86. A second way that the proposed regulation's blocking of appropriate price signals would harm consumers is by undermining contractual arrangements for channel and tier placement. Channel and tier placement is important to programming networks because

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<sup>122</sup> The programmer might also receive less revenue per viewer exposure because of advertiser concern that viewers would suffer from ad overload.

the networks want to increase consumers' exposure to their content. Consequently, contracts between programmers and MVPDs often have terms explicitly addressing placement. The Commission's proposed policies would undermine those terms and would deny programming networks efficient use of an important form of content promotion.

87. The Commission asserts that it has no evidence of a problem regarding possible disruption of "elements of service presentation" including channel lineups or neighborhoods.<sup>123</sup> However, contrary to the Commission's assertion, there clearly is reason to expect a problem.<sup>124</sup> New navigation interfaces may completely obscure tiers and channel placements. For example, a navigator might operate purely as a search engine that relies on keywords and never displays neighboring channels. Under the Commission's proposed rules, a programmer that negotiated with an MVPD to be on a widely distributed tier (*e.g.*, expanded basic) in order to obtain broad exposure for its content might find that its content was far from readily accessible by consumers viewing the MVPD's service through a third-party navigator.

88. Contract negotiations between content creators and MVPDs typically involve a series of give-and-take tradeoffs. If an MVPD is unable to guarantee valuable channel placement to content providers on third-party navigation devices, then all else equal the

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<sup>123</sup> *Device NPRM*, ¶ 80.

<sup>124</sup> See, *e.g.*, *DSTAC WG4 Report* at 160-161; and "Comments of the National Cable & Telecommunications Association," *In the Matter of Final Report of the Downloadable Security Technology Advisory Committee*, MB Docket No. 15-64, October 8, 2015, at 4-5.

content provider can be expected to seek higher total fees for its content, which ultimately will result in higher prices charged to consumers.

89. Moreover, the problem would be even worse to the extent that video discovery providers took advantage of the Commission’s proposed rules to threaten programmers with poor channel placement or unfavorable treatment by search algorithms unless the programmers agreed to pay the video discovery providers not to do so. Here, too, the effect would be to increase programmers’ costs and lower their investment incentives, ultimately to consumers’ detriment.

90. Several public interest groups representing minority interests and promoting social justice have raised strong concerns regarding how the Commission’s proposed rules might be particularly harmful to minority programmers and their viewers. For example, the Multicultural Media, Telecom and Internet Council (“MMTC”), in partnership with 16 national and social justice organizations, has urged the Commission to consider the possible unintended consequences of its proposed rules and cautioned that the Commission’s:<sup>125</sup>

proposal would allow tech companies to disaggregate the programming in pay TV services, repack and rebrand it as their own, ignoring the agreements that these programmers have negotiated with their distributors. In our view, diverse and independent programmers and content creators would experience negative impacts on channel placement, advertising scheduling and other critical elements that have increased the visibility and profiles of these networks in a crowded video marketplace.

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<sup>125</sup> Letter from Multicultural Media, Telecom, and Internet Council, *In the Matter of Final Report of the Downloadable Security Technology Advisory Committee*, MB Docket No. 15-64, February 10, 2016 (hereinafter, *MMTC Letter*), at 3.

The letter summarizes its concern that, “[i]n short, the economic model that has successfully supported diverse and independent programmers and content creators would be undermined.”<sup>126</sup> The letter further cautions that one of the effects of its policies could be to “relegate diverse and independent networks to the fringes of the video marketplace, while inadvertently creating a new form of content redlining.”<sup>127</sup> Lastly, the letter faults the Commission for its having:<sup>128</sup>

failed to consider the absence of cultural diversity among the corporate beneficiaries of this proposal—especially popular video streaming or edge providers—whose business models are not currently producing or distributing nearly enough multicultural content on their platforms and investing in diverse content creators.

91. A letter from the Hispanic Technology & Telecommunications Partnership (“HTTP”) and Hispanic Coalition echoes the concerns of the *MMTC Letter*:<sup>129</sup>

Diverse programmers today depend upon carefully negotiated licensing agreements to set the terms by which their shows will be distributed, covering issues like advertising, channel placement, and on-demand replays. But AllVid would let tech companies raid these agreements, ignore their terms or pile on layers of new advertisements of their own. That would further devalue diverse programming and make it harder for networks serving communities of color to find an audience and survive. In the worst case, it would lead to a new round of TV “redlining” in which AllVid companies pick and choose what networks to show and drop Latino programming or bury it deep in the channel lineup or search results.

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<sup>126</sup> *Id.* at 3.

<sup>127</sup> *Id.* at 3-4.

<sup>128</sup> *Id.* at 1.

<sup>129</sup> Letter from Hispanic Technology & Telecommunications Partnership (“HTTP”) and Hispanic Coalition, February 4, 2016, *available at* <http://httponline.org/2016/02/http-and-hispanic-coalition-response-to-allvid-proposal-february-4-2016/>, site visited April 21, 2016.

92. Although economic theory identifies conditions under which having additional parties supply video discovery capabilities could lead to capabilities specifically targeted at minority tastes, economic theory also identifies the possibility that third-party providers could act in ways that lead to the isolation of minority programming. In particular, economic theory identifies the threat that an advertising-based video discovery provider would have financial incentives to offer a navigation experience that appealed to the broadest possible audience and did not well serve minority interests.

**B. THE PROPOSED PARITY REQUIREMENT WILL REDUCE INNOVATION INCENTIVES AND, THUS, HARM COMPETITION AND CONSUMERS.**

93. The Commission’s proposed regulations seek “parity of access to content to all Navigation Devices.”<sup>130</sup> If implemented, the proposed parity requirements would harm innovation competition and consumer welfare by increasing an MVPD’s costs of innovating and by delaying the date at which an innovative MVPD could introduce its innovation to consumers.

94. There would be several sources of cost increase and delay. For example, the requirement that at least one Compliant Security System be available would increase an

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<sup>130</sup> The Commission summarizes the parity requirements as follows:

First, if an MVPD makes its programming available without requiring its own equipment, such as to a tablet or smart TV application, it must make the three Information Flows available to competitive Navigation Devices without the need for MVPD-specific equipment. Second, at least one Compliant Security System chosen by the MVPD must enable access to all the programming, with all the same Entitlement Data that it carries on its equipment, and the Entitlement Data must not discriminate on the basis of the affiliation of the Navigation Device. Third, on any device on which an MVPD makes available an application to access its programming, it must support at least one Compliant Security System that offers access to the same Navigable Services with the same rights to use those Navigable Services as the MVPD affords to its own application.

*(Device NPRM, ¶ 63.)*

MVPD's cost of expanding its services to new platforms, and the requirement could be expected to delay implementation of the MVPD's own service because the MVPD could not deploy the service on the new platform until any required changes to standards and re-certification for third parties had occurred. Similarly, if an MVPD wanted to implement a new video format, the MVPD could not do so until the new format was also available to makers of competitive navigation devices for use on the same platform. DIRECTV recently launched live 4K UltraHD content on televisions equipped with RVU (currently available from Samsung, LG, and Sony).<sup>131</sup> If the Commission's proposed parity requirements had been in effect, then DIRECTV would not have been able to launch this service until the standards and security protocols for delivering the Commission's three information flows to third-party apps on Samsung and other 4K Ultra HD televisions were in place, which likely would have been a time-consuming process.

95. The increased costs and delays would harm competition and consumers through several mechanisms. First, the increased costs of innovating would weaken competition by reducing MVPDs' financial incentives to innovate. Second, the delays in the implementation of innovations would directly harm consumers by denying them timely access to improved offerings. Third, the delays induced by the parity requirements would further weaken MVPDs' innovation incentives both by making innovation even more costly and by diminishing the incentive to innovate in order to gain competitive

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<sup>131</sup> DIRECTV, <http://www.directv.com/technology/4k>, site visited April 21, 2016; [https://support.directv.com/app/answers/detail/a\\_id/4385/~/%7Bwhat-is-a-directv-4k-ready-tv-and-how-does-it-work%3F%7D](https://support.directv.com/app/answers/detail/a_id/4385/~/%7Bwhat-is-a-directv-4k-ready-tv-and-how-does-it-work%3F%7D), site visited April 21, 2016.

advantage. The latter effect would arise because the delay would generally give competitors time to imitate the innovator and/or prepare competitive counter-strategies during the delay period.<sup>132</sup> In summary, the result of the parity requirements would be diminished innovation and competition, and reduced consumer benefits.

**C. THE PROPOSED RULES WILL UNDERMINE INCENTIVES TO MAKE COMPLEMENTARY INVESTMENTS.**

96. Investments in video discovery capabilities and in the other components of an MVPD's service are frequently complementary in the sense that an improvement in one element of the overall package increases the value of the other elements. For example, an MVPD's investment in an improved video format may increase the price that the provider of video discovery capabilities can extract from consumers or advertisers. This complementarity has important implications for regulation because separating the responsibility for such investments across two companies—as the Commission seeks to mandate—can harm competition and consumers by inefficiently dampening investment and innovation incentives.

97. To see why these harms would arise, suppose that an MVPD was considering whether to invest in upgrading its service, which would make both its MVPD service and the offering of a third-party video discovery provider more attractive to consumers. An economically rational firm would compare the costs and benefits of the upgrade. In assessing whether the costs of the investment exceeded the benefits, the MVPD would

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<sup>132</sup> These effects and the harm to competition (both the attenuation of competition and the distortion of competition) would be particularly severe when the competitors were OVDs and other entities not subject to the proposed rules.



not take into account the benefits its investment would generate for the third-party video discovery provider. By contrast, if the MVPD offered an integrated video offering that included discovery capabilities, the MVPD would internalize the costs and benefits of the upgrade for both the video discovery capabilities and the other elements of the MVPD's service. Hence, in this case the investment and innovation incentives would be greater, to the benefit of consumers.

98. The third-party video discovery provider would have insufficient investment incentives as well. For example, suppose further that consumers could benefit from the MVPD's upgrade only if the third-party video discovery provider invested in upgrading its equipment or software. The third-party provider's investment incentives would generally be inefficiently low because it would not take into account the effects of its actions on the profits of the MVPD.<sup>133</sup> The distortions in investment incentives could also interact in a way that further harmed investment and innovation and, thus, competition and consumers. In particular, if the third-party video discovery provider were unwilling to invest in its upgrade, then the MVPD would have reduced incentives to make its own upgrade investment. The MVPD's upgrade incentives would be reduced because those subscribers relying on the third-party video discovery provider would not benefit from the MVPD's upgrade and, thus, would be neither more loyal to the MVPD nor willing to pay more for its services.

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<sup>133</sup> The third-party video discovery provider might seek payment from the MVPD, but then the harms arising from inefficient bargaining and from the effects of the resulting increase in the MVPD's costs would arise.

**D. BY MAKING IT MORE DIFFICULT FOR CONSUMERS TO MAKE INFORMED CHOICES, THE PROPOSED RULES WILL UNDERMINE QUALITY INCENTIVES.**

99. One of the consequences of the Commission’s attempt to force the unbundling of navigation from the remainder of MVPD service is that consumers may be unable to determine the source of a problem or degradation in service quality.<sup>134</sup> For example, it may be difficult for a consumer to determine if a given program has a high ad load or contains irrelevant and annoying ads because of actions taken by the programmer or by the third-party video discovery provider.<sup>135</sup>

100. The incentives of MVPDs and third-party video discovery providers to supply high quality will suffer if consumers are unable to attribute credit and blame correctly. This adverse effect will arise because, if consumers are unable to determine the source of lower quality, then a firm that lowers its quality will not lose as many customers as it otherwise would, and a firm that raises its quality will gain fewer customers than it otherwise would. Consequently, firms will have less incentive to maintain high quality and engage in investment and innovation to raise quality.

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<sup>134</sup> For an earlier discussion of this issue in a related context, see Michael G. Baumann and John M. Gale, “Economic Analysis of the Regulation of MVPD Navigation Devices,” MB Docket No. 10-91, July 19, 2010, at 6-7.

<sup>135</sup> Indeed, the only way to determine the source of the observed changes in ad load—or the substitution of less-desirable ads in place of what would have been more-desirable ads—might be to engage in continuous side-by-side comparison of an MVPD’s video signal accessed through two different video discovery providers. Ongoing side-by-side comparisons clearly would be impractical and inconvenient for consumers.

101. The benefits of one-stop shopping and having a single point of responsibility for promoting higher quality are widely recognized. For example, the U.K. Competition & Markets Authority (2014) states:<sup>136</sup>

As systems are collections of complementary components that work together, systems markets are subject to free-riding and shared liability problems. Thus, system owners need to exert a degree of control over their system and the firms cooperating in it and closure can help address these problems. This might be especially relevant in markets in which the quality of the components associated with a given system cannot be easily assessed beforehand. The selling of low-quality components could reduce the consumer willingness to buy even high-quality products for fear that they are of low quality. In addition, some component makers could behave opportunistically and be tempted to decrease the quality of their component while blaming sellers of the other components for the resulting malfunction.... In addition, a closed system may be in a better position to overcome information asymmetries and free-riding problems. The owner of a closed system has no incentive to sell low-quality components as this would directly reduce its customer base for all its other components and for the primary product itself. [Footnotes omitted.]

The Commission itself has stated that “an information problem, whereby consumers are unsure about the causes of problems or limitations with their services,” decreases a “provider’[s] responsiveness to consumer demands and limits the provider’s incentives to improve their” offerings.<sup>137</sup>

102. The Commission or commenters might assert that competition (including competition from MVPD’s integrated video discovery capabilities) will solve this problem. But competition cannot solve the problem if consumers are poorly informed about which features and functions of the overall discovery and viewing experience are

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<sup>136</sup> U.K. Competition & Markets Authority, “The Economics of Open and Closed Systems,” December 16, 2014, at 27-28.

<sup>137</sup> Report and Order on Remand, Declaratory Ruling, and Order, *In the Matter of Protecting and Promoting the Open Internet*, 30 FCC Rcd 5601, rel. March 12, 2015, ¶ 81.

due to the MVPD and which are due to the video discovery provider.<sup>138</sup> In fact, it is recognized as a general matter of economics that, in the presence of poorly informed consumers, intense competition can actually exacerbate the problems associated with poor information by creating economic pressures for third-party video discovery providers to mislead consumers to gain competitive advantage. For example, a third-party video discovery provider might gain competitive advantage over other video discovery providers by inserting additional advertising (which generates additional revenues) and having consumers believe that the ads were part of the video stream provided by the MVPD and, thus, could not be evaded by switching to a different video discovery provider.<sup>139</sup>

**E. UNDER THE CONDITIONS CREATED BY THE COMMISSION’S PROPOSED RULES, STANDARD-SETTING ORGANIZATIONS CANNOT BE RELIED UPON TO PROMOTE COMPETITION.**

103. The Commission’s proposal places very heavy reliance on standard-setting organizations.<sup>140</sup> But the Commission provides no analysis of either how standards bodies function in practice or how the functioning of standards bodies would be affected by Commission policies. Economists have extensively studied the organization and

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<sup>138</sup> In other proceedings, the Commission has emphasized the importance of well-informed consumers for effective competition. See, e.g., Report and Order on Remand, Declaratory Ruling, and Order, *In the Matter of Protecting and Promoting the Open Internet*, 30 FCC Rcd 5601, rel. March 12, 2015, ¶¶ 81 and 297 (“the transparency rule ensures that consumers have sufficient information to make informed choices thereby facilitating competition”).

<sup>139</sup> Rachel Kranton (2003) states: “when firms compete for market share, perfect equilibria in which firms produce high-quality goods need not exist. Competition for customers can eliminate the price premium needed to induce firms to maintain a reputation for high-quality production.” (Rachel Kranton (2003), “Competition and the Incentive to Produce High Quality,” *Economica*, 70(279): 385-404, at 385.)

<sup>140</sup> *Device NPRM*, ¶¶ 34-42.

operation of standard-setting organizations (“SSOs”).<sup>141</sup> SSOs are subject to a variety of potential problems. For example, Contreras states: “Despite their potential benefits, voluntary consensus standards have over the past decade become the subject of significant private litigation, regulatory enforcement and policy debate.”<sup>142</sup>

104. A proper analysis would address several critical questions that the Commission has not addressed. For example, what are the incentives of a participant to prevent the standards body from reaching agreement within the two-year time period allowed by the Commission’s proposed rules? What happens if the standards body does not come to agreement? The *Device NPRM* defines an “open standard body” as one that “strives to set consensus standards,” among other features. Reaching consensus can be very time consuming, and it can be impossible if some parties have strategic reasons to avoid reaching consensus.

105. It is well-understood by economists that the default outcome should a negotiation fail can have a large influence on the outcome reached through agreement.<sup>143</sup> Parties

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<sup>141</sup> See, e.g., Mark A. Lemley (2002), “Intellectual Property Rights and Standard-Setting Organizations,” *California Law Review*, **90**(6): 1889-1980; Jorge L. Contreras (August 9, 2015 draft), “Patents, Technical Standards and Standards-Setting Organizations: A Survey of the Empirical, Legal and Economics Literature,” in Peter S. Menell and David L. Schwartz (eds.), *Research Handbooks on the Economics Of Intellectual Property Law, Volume 2 – Analytical Methods*, Cheltenham, UK: Edward Elgar Publishing (forthcoming 2016), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2641569](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2641569), site visited April 16, 2016; Benjamin Chiao, Josh Lerner, and Jean Tirole (2007), “The Rules of Standard-setting Organizations: an Empirical Analysis,” *The RAND Journal of Economics*, **38**(4): 905-930, at 906.

<sup>142</sup> Contreras (2015) at 3.

<sup>143</sup> As described above, leading economic theories of bargaining demonstrate that disagreement points (*i.e.*, the economic payoffs that the bargaining parties will earn if they fail to reach agreement) play a key role in determining the bargaining outcome.

negotiating in a standards body will be bargaining in the shadow of the Commission's default policy. The Commission appears to have specified its chosen default outcome without analyzing the consequences of that default outcome for the likely outcome of the standard-setting process. Importantly, the Commission's proposed specification of a default outcome does not contain protections for provisions regarding advertising or channel placement.<sup>144</sup> Thus, if parties are unable to reach agreement on creating new safeguards, the default outcome will come into effect without such safeguards. In effect, the Commission has already chosen sides.

#### **F. SUMMARY OF HARMS**

106. As explained above, economic analysis indicates that implementing the proposed rules would diminish and distort competition through at least five different economic mechanisms. Although I discussed each one in turn, it is important to recognize that the different mechanisms would interact with—and reinforce—one another, further harming competition and consumers. For example, the lack of price signals and the division of responsibility for complementary investments across independent entities both would reduce providers' incentives to invest in quality improvements, and the reduction in

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<sup>144</sup> The Commission has stated:

We do not currently have evidence that regulations are needed to address concerns raised by MVPDs and content providers that competitive navigation solutions will disrupt elements of service presentation (such as agreed-upon channel lineups and neighborhoods), replace or alter advertising, or improperly manipulate content. ... We have not seen evidence of any such problems ... and ... do not believe it is necessary for us to propose any rules to address these issues.

(*Device NPRM*, ¶ 80.)

incentives would be even greater to the extent that consumers were poorly informed about the sources of quality changes.

107. For all of these reasons, if the Commission's proposed rules were implemented their projected effect would be to increase programmers' and MVPDs' costs and decrease their investment incentives. Consumers would be harmed by the resulting increases in prices and reductions in quality, including the delay or loss of potential future innovations. Consumers would suffer these harms with respect to video discovery capabilities, programming, and MVPD services more broadly.

#### **IV. CONCLUSION**

108. The *Device NPRM* claims to be concerned with consumer welfare and uses that concern to justify an expansive interpretation of the statute. But, if the Commission were truly concerned with consumers, it would conduct a sound, forward-looking assessment of market performance, and it would take a realistic view of the projected effects of its proposed regulations. Instead, the *Device NPRM* has failed to provide any meaningful analysis either of whether there is a market failure that needs to be addressed or of the effects of its policies on competition and consumer welfare.

109. An examination of marketplace facts reveals that competition has dramatically increased since Section 629 was enacted and that the marketplace today is offering consumers an increasingly attractive and wide array of means of accessing video programming. Absent imposition of the Commission's proposed rules, these positive trends can be expected to continue. By contrast, economic analysis of the proposed rules demonstrates that implementing them would be expected to harm consumers by

diminishing and distorting competition in ways that would raise prices while lowering quality and innovation for programming and MVPD services. In summary, while there are no signs of serious market failure in the provision of video access devices today, there are substantial signs of regulatory failure evident in the Commission's proposed rules, which—if implemented—would themselves actually induce market failure.

I declare under penalty of perjury, under the laws of the United States, that the foregoing is true and correct to the best of my knowledge and belief.

Executed on April 22, 2016

A handwritten signature in blue ink, appearing to read "Michael L. Katz", with a long horizontal flourish extending to the right.

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Michael L. Katz



## V. APPENDIX: QUALIFICATIONS

110. I hold the Sarin Chair in Strategy and Leadership at the University of California at Berkeley, where I have a joint appointment in the Haas School of Business Administration and in the Department of Economics. I have also served on the faculty of the Department of Economics at Princeton University and the Stern School of Business at New York University. I received my A.B. from Harvard University *summa cum laude* and my doctorate from Oxford University. Both degrees are in Economics.

111. I specialize in the economics of industrial organization, which includes the study of antitrust and regulatory policies. I am the co-author of a microeconomics textbook, and I have published numerous articles in academic journals and books. I have written academic articles on issues regarding the economics of network industries, two-sided markets, systems markets, and antitrust enforcement. I am a co-editor of the *Journal of Economics and Management Strategy* and serve on the editorial board of *Information Economics and Policy*.

112. In addition to my academic experience, I have consulted on the application of economic analysis to issues of antitrust and regulatory policy. I have served as a consultant to both the U.S. Department of Justice and the Federal Communications Commission (“FCC”) on issues of antitrust and regulatory policy. I have served as an expert witness before state and federal courts. I have also appeared before the California Public Utilities Commission and other state regulatory commissions, and I have testified before the U.S. Congress.

113. From January 1994 through January 1996, I served as the Chief Economist of the FCC. I participated in the formulation of policies with respect to all industries under FCC jurisdiction, and I oversaw both qualitative and quantitative policy analyses.

114. From September 2001 through January 2003, I served as the Deputy Assistant Attorney General for Economic Analysis at the U.S. Department of Justice. I directed a staff of approximately fifty economists conducting analyses of economic issues arising in both merger and non-merger enforcement. My title as Deputy Assistant Attorney General notwithstanding, I am not an attorney.